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pv magazine webinars

13 April 2026

2:00 pm – 3:30 pm | BST, London

3:00 pm – 4:30 pm | CEST, Berlin

Building the all-electric home: integrating solar, storage, EV charging and heat pumps quickly and cost effectively



Matthew Lynas

Editor

pv magazine

Welcome!

pv magazine webinars

Do you have any questions? ❓ 🙋

Send them in via the Q&A tab. 👉 We aim to answer as many as we can today!

You can also let us know of any tech problems there.

We are recording this webinar today. 📹

We‘ll let you know by email where to find it and the slide deck, so you can re-watch it at your convenience. 👀 💡

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Building the all-electric home: integrating solar, storage, EV charging and heat pumps quickly and cost effectively

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Editor
pv magazine



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GoodWe



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EU Product Manager
GoodWe

GOODWE

DRIVING THE WORLD'S

SMART ENERGY FUTURE

PV Magazine Webinar

Building the all-electric home:

Integrating solar, storage, EV charging and heat pumps quickly and cost effectively



Vision

Driving the world's smart energy future

Mission

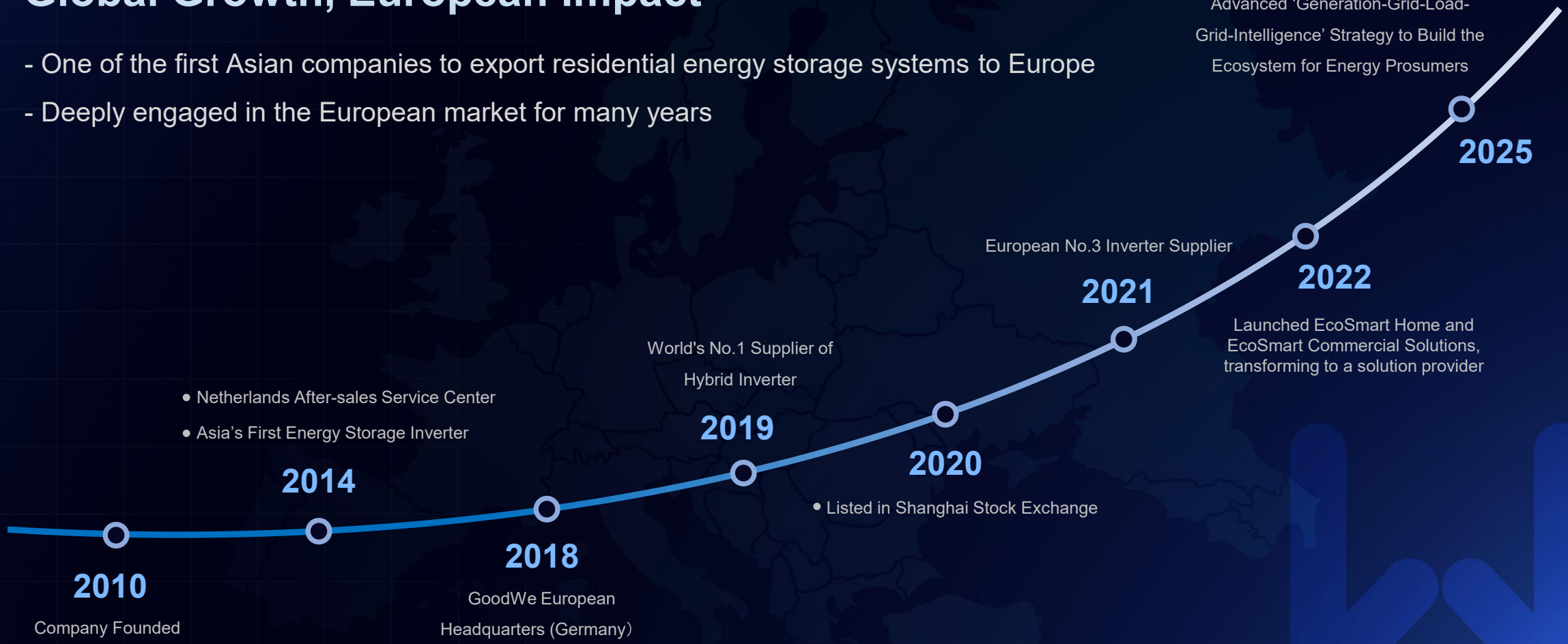
We are determined to become a major driving force in the global energy transition, building a sustainable future.



GOODWE

Global Growth, European Impact

- One of the first Asian companies to export residential energy storage systems to Europe
- Deeply engaged in the European market for many years



GOODWE

GoodWe Europe

Logistics and Operations

Fast and reliable business structure with local contacts

Service and Support

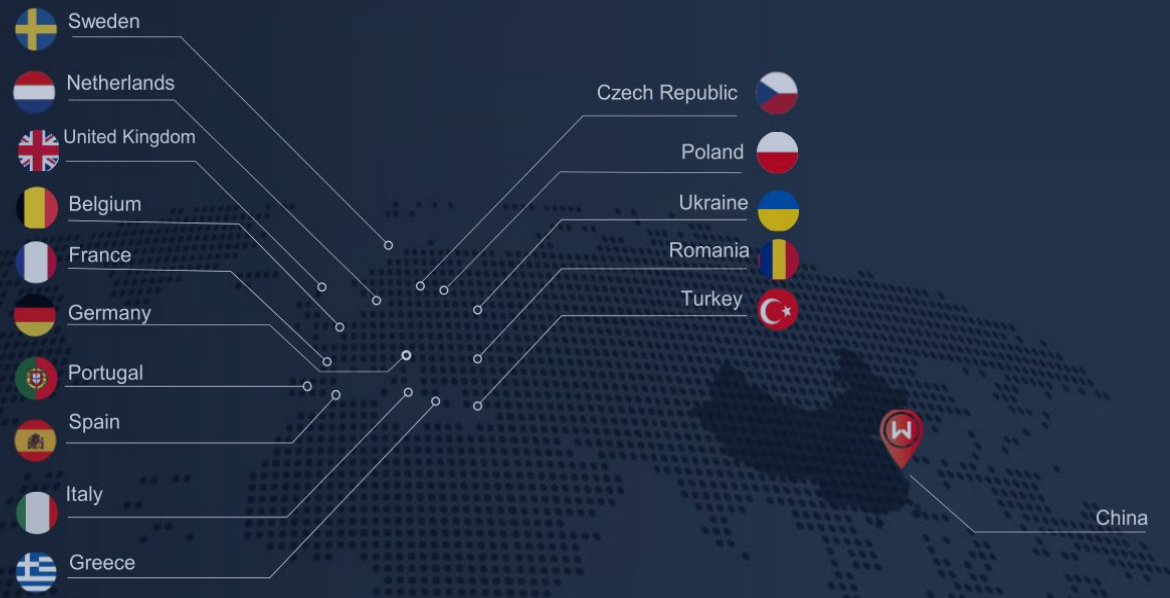
Effective structures for multi-level support

Community for Partners and Customers

GoodWe PLUS+ community with advantages for installers in Europe

Where We Operate

Driven by our customer-centric approach, GoodWe has established a global network of production, sales and service to stay closer to customers and deliver timely, reliable service.



4 Manufacturing Sites

3 in China (Suzhou, Guangde, Shunde) and 1 in Vietnam (Haiphong)

9 Warehouses in Europe, 2 more coming soon

4 in Netherlands, 2 in UK, 2 in Germany, 1 in Turkey
Italy and Poland coming soon

15+ Sales & Service Centers in Europe

Supporting local languages and certifications

150+ local employees and growing

Supported by additional staff in our headquarter

GOODWE

GoodWe All-in-One Solution



GOODWE

Today’s Energy Landscape: Challenges & the Rise of Prosumers

- Geopolitical uncertainty, volatile energy prices, grid stability risks
- Paradigm Shift: Households → Prosumers (energy producers + consumers)
- Core Value: Autonomy, Resilience, Smart Control — Beyond just cost savings

GOODWE

GoodWe: Enabling the Prosumer Ecosystem

- Independent power generation
- Resilient supply
- Intelligent optimization

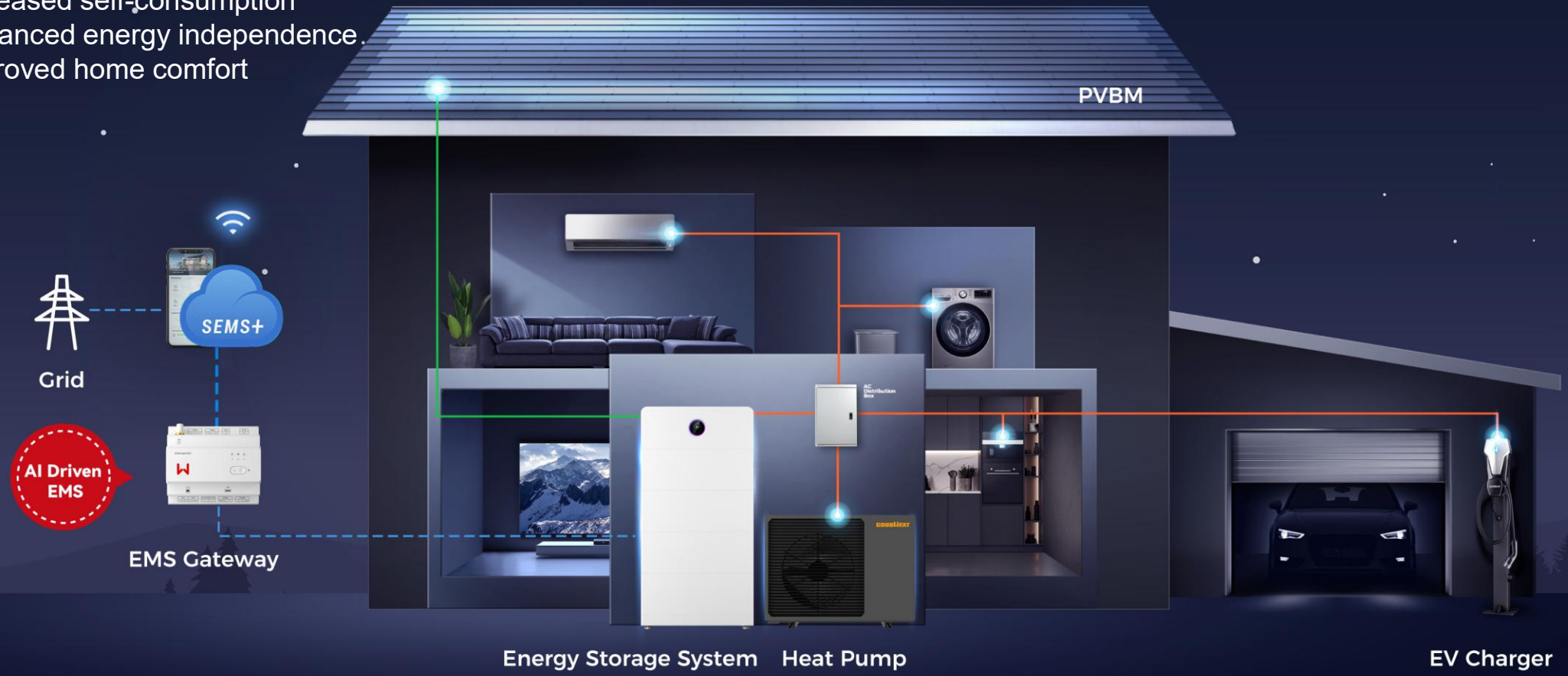


GOODWE

EcoSmart Home

GoodWe Warm Home All-in-One Solution

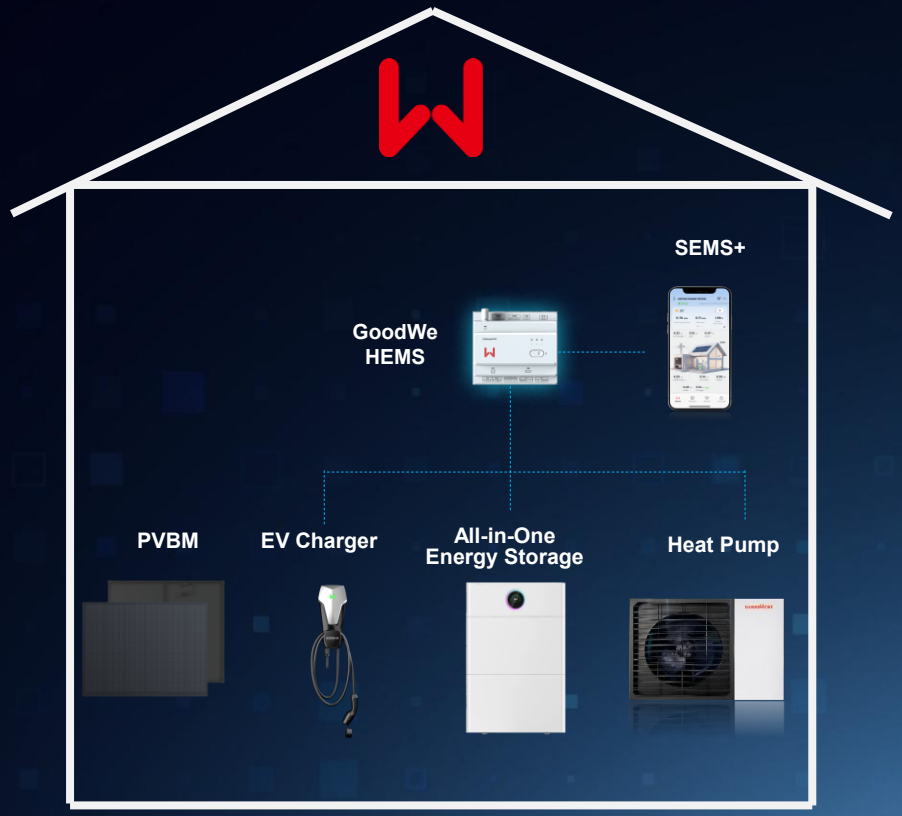
- Lower energy bills
- Increased self-consumption
- Enhanced energy independence
- Improved home comfort



Why GoodWe All-in-One Solution?

GoodWe Solution

- One-stop smart energy monitoring & management
- One-stop hassle-free after-sales & technical support
- One-stop full-lifecycle operation & maintenance
- One-stop system design & deployment



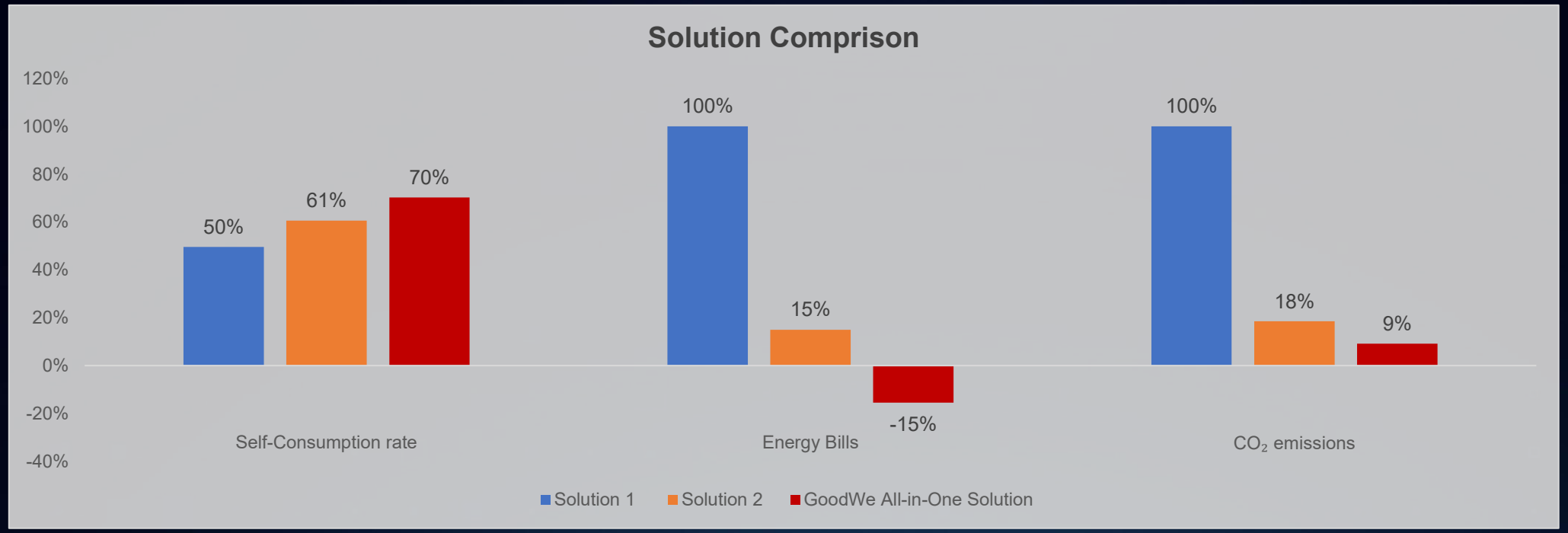
Traditonal Solution

- Disconnected energy data monitoring
- Unclear after-sales accountability and delayed support
- Fragmented maintenance
- Piecemeal solutions and tedious cross-vendor coordination



GOODWE

Why GoodWe All-in-One Solution?



Solution Analysis for a typical four-person household

- Solution 1:

16kWp PV Manufacture 1 + 8kW/16kWh Storage Manufacture 2 + 7kW EV Charger Manufacture 3 + 8kW Gas Boiler Manufacture 4

- Solution 2:

16kWp PV Manufacture 1 + 8kW/16kWh Storage Manufacture 2 + 7kW EV Charger Manufacture 3 + 8kW Heat Pump Manufacture 4

- GoodWe All-in-One solution：

16kWp PVBM + 8kW/16kWh ESA + 7kW HCA G2 EV Charger + 8kW GoodHeat Heat Pump + Ezmanager 3000C HEMS

GOODWE

Residential All-in-one Energy Storage Solution

Single Phase 3-10 kW | Three Phase 5-29.9 kW

2-4 MPPTs | High voltage

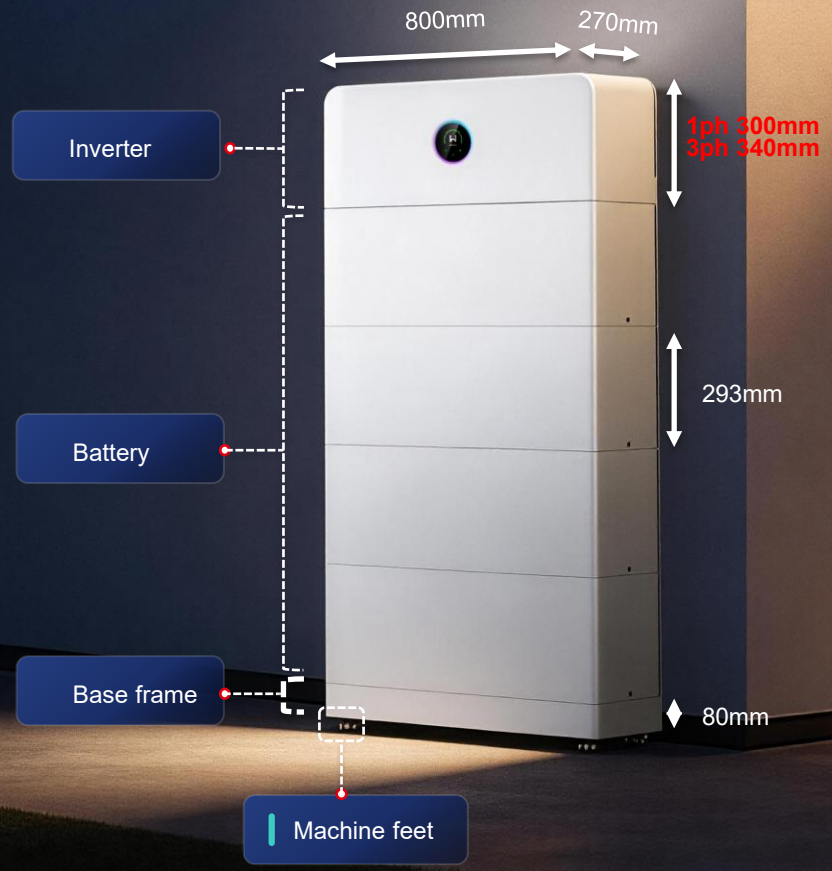
4S

Silent

Smart

Secure

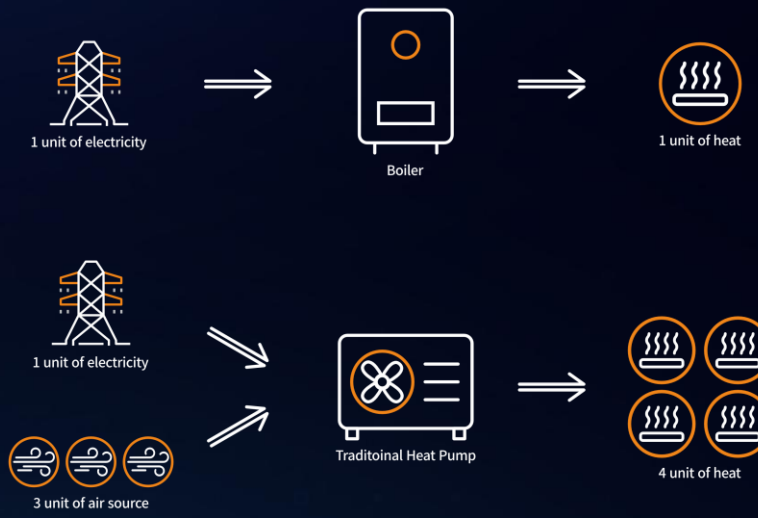
Simple



GoodHeat Solution

An air source heat pump extracts heat from the outside air and upgrades it via a refrigerant cycle to provide efficient space heating or hot water.

- Up to 3–4x more efficient than traditional gas boilers
- Significant reduction in carbon emissions
- Lower long-term energy costs with smart control



R290 Residential Air to Water Heat Pump

- Eco-friendly R290 refrigerant, **ODP=0**, **GWP=3**
- **A+++ at 55℃** & **A+++ at 35℃**
- Outlet water temperature up to **75℃**
- Smart sterilization every **7** days, effectively kills **99%** of Legionella.
- Noise as low as **39dB(A)** at 1 meter
- Support **Modbus** protocol, reserved **RS485** port
- Equipped with R290 refrigerant leakage sensor
- Built-in **4G** module (optional)
- Built-in gas separator(optional)



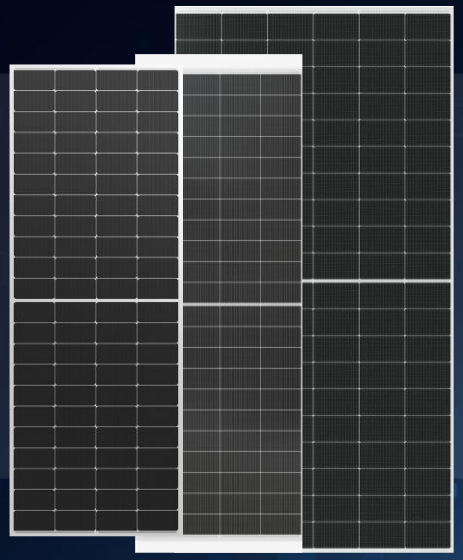
GOODWE

PVBM Solution

Vela/Strix/Atlas Carport Systems

- Vela All-in-One: : Polaris and Structure, Everything in a single pallet.
- Seamless Compatibility with Smart Devices (e.g., motion-sensing lights, smart surveillance cameras);
- Build a Comprehensive Smart Home Ecosystem.
- Reserved Upgrade Capacity, Supporting Integration of Inverters, Batteries, and EV Chargers.





Galaxy Series Lightweight PV modules

Light: up to 60% lighter than conventional PV modules

Sturdy: Same statical load performances as PV modules

Penetration Free: Clamps or structural adhesive for roof connection without penetration.

Versatile: PVC or TPO roof membranes/Rail & Rail-less mounting systems compatible

All-in-one: Solution: From order to Installation

Core Advantages

One Stop Service

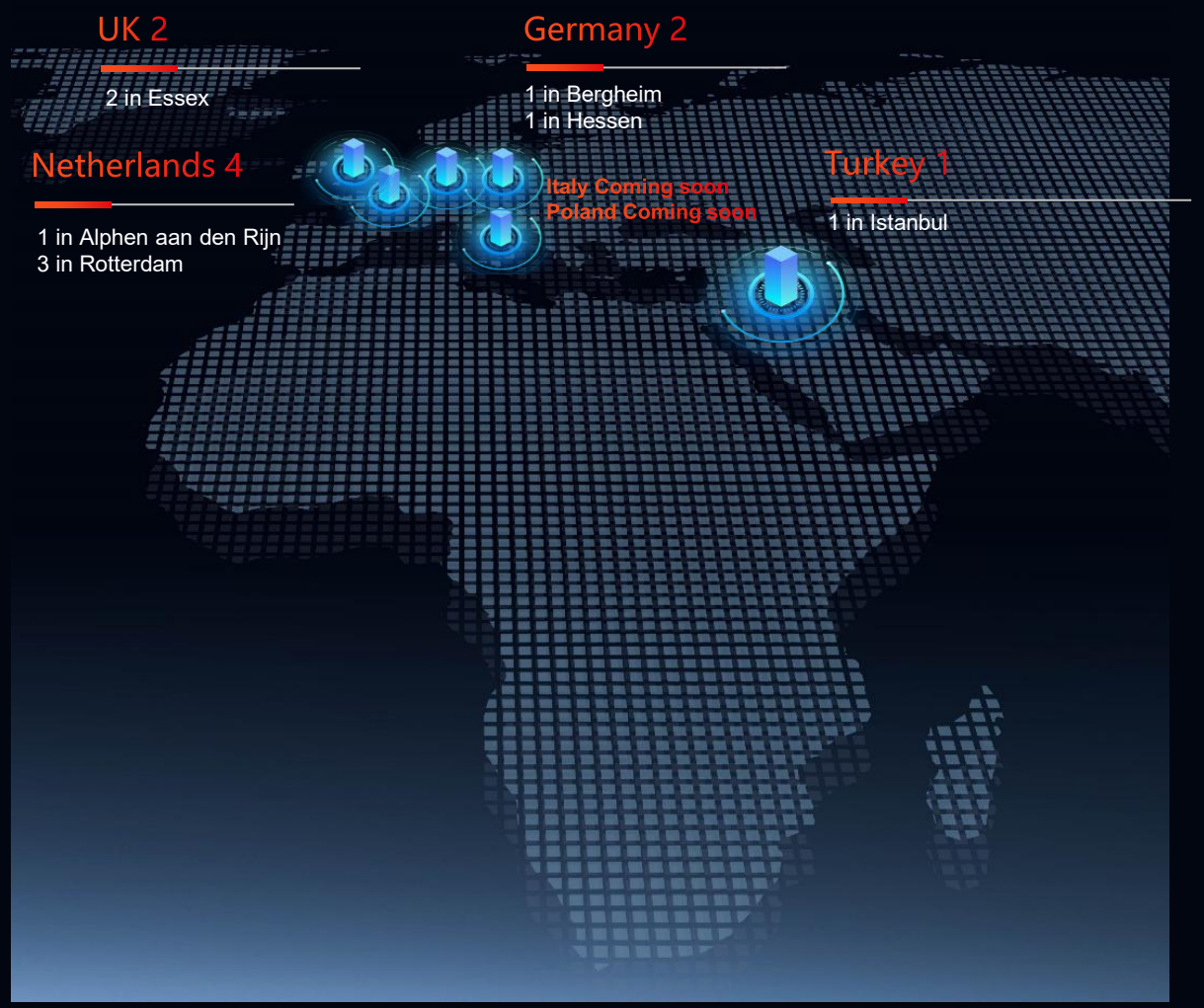
From design to commisioning

Local Support

Rapid response by local warehousing team

Quality Assurance

Strict quality control ensures excellence in every process



GOODWE

Fast Response

- 24/7 Helpdesk: All-day hotline for inquiries
- <3 days support from local experts
- <1 week to HQ experts
- <10 days to HQ R&D

Professional

- Reliable service partner
- Local Professional guidance from experts
- Remote Diagnostics quick positioning via remote

Peace of Mind

- Fast supply of spare part from EU warehouse
- Sufficient stock for urgent needs
- Efficient logistics for timely arrival


GOODWE
THANK YOU!
Driving the World‘s Smart Energy Future

GOODWE

DRIVING THE WORLD'S

SMART ENERGY FUTURE

PV Magazine Webinar

Product Deep Dive
GoodWe All-in-One Solution



GOODWE

4S System



Silent Smart Secure Simple

GOODWE

1st “S”

Silent

Engineered for True Silence.

3-Layer Silence Design, as Low as 30dB*

*5~8kW | Operating noise as low as 30dB at 25° C ambient



GOODWE

30dB* — How Quiet Is That?

Quieter than a library whisper, fully compliant with global indoor silence standards

20-25 dB

GOODWE ESA

30 dB

30-35 dB

40-45 dB

Traditional Residential ESS

60+ dB

*5~8kW | Operating noise as low as 30dB at 25° C ambient

GOODWE

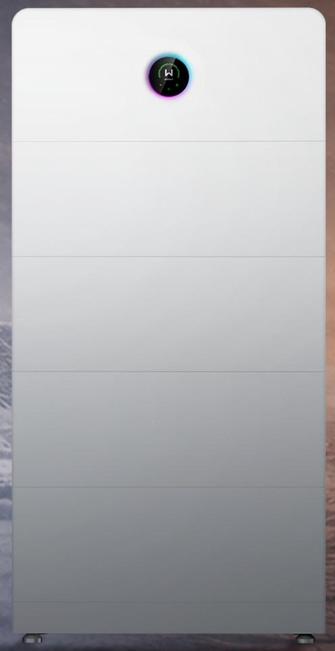
Silence doesn’t happen by chance. It’s built.

20+

R&D Experts
Dedicated to
Quiet
Operation

15+
Rounds

AI Algorithm
Optimization



4300+
Hours

Lab
Operation
Noise Testing

Test Conditions

Wind, Sand,
Rain, Snow
Hot & Cold

GOODWE

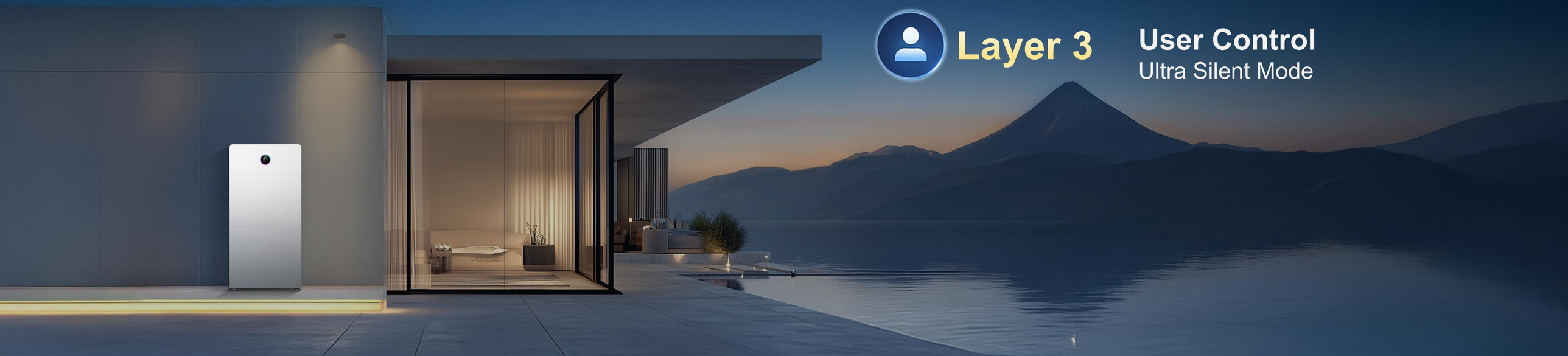
3 Layers of Silence
As Quiet as a Whisper

True low-noise performance requires a system-level approach from hardware, to intelligence, to user control.

Layer 1
Hardware Foundation
Low-Noise Fan Design

Layer 2
Intelligent Balance
Real-time adaptation

Layer 3
User Control
Ultra Silent Mode



GOODWE

1st Layer:

Starting at the Source. Custom Low-noise fan

More efficiency, less heat

SiC components for 98% efficiency

Pack-level heat dissipation

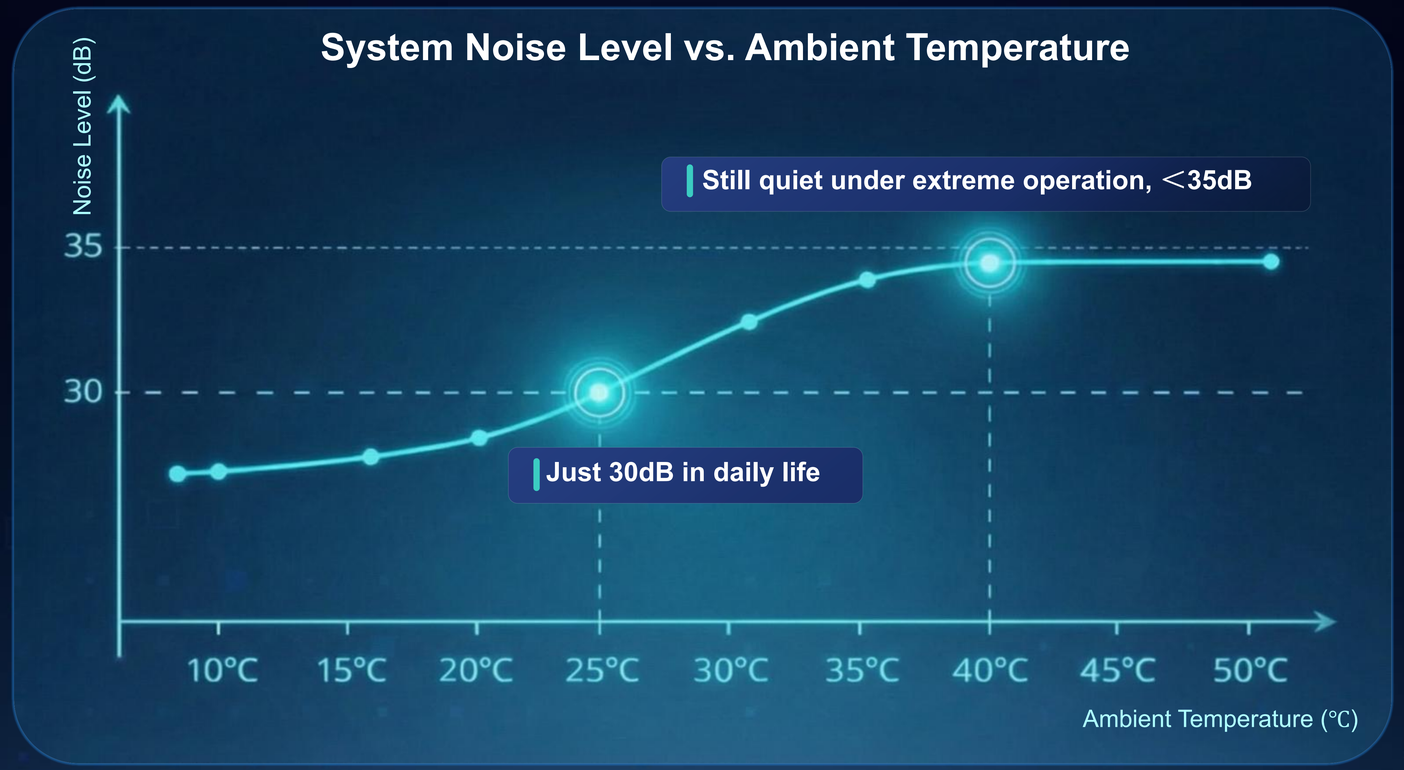
Built-in heat sink and bee mesh heat dissipation design



30%

GOODWE

2nd Layer:
Intelligent Balance - Real-time adaptation





Whisper-quiet performance, as low as 30dB*

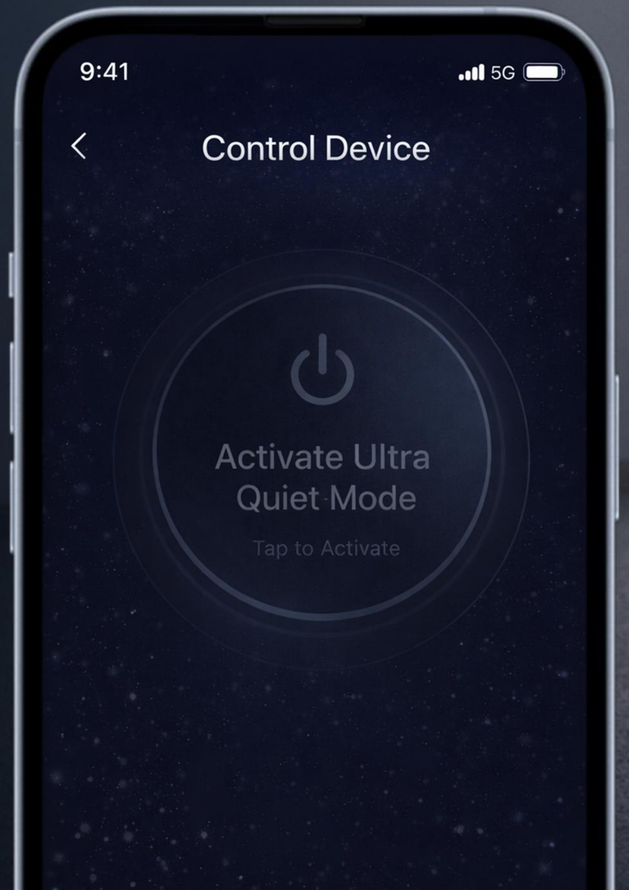
*5~8kW | Operating noise as low as 30dB at 25° C ambient

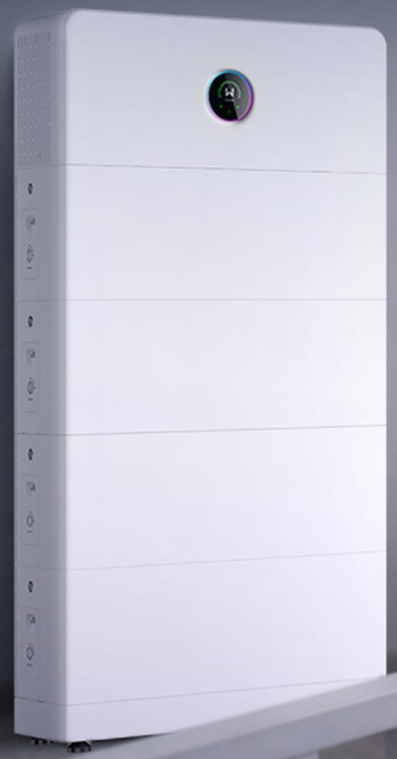
GOODWE

3rd Layer:

Silence in Your Hands - Industry’s first ultra silent mode

Instantly reduces noise beyond the base level, creating a deeper, disturbance-free space for demanding quiet scenarios.





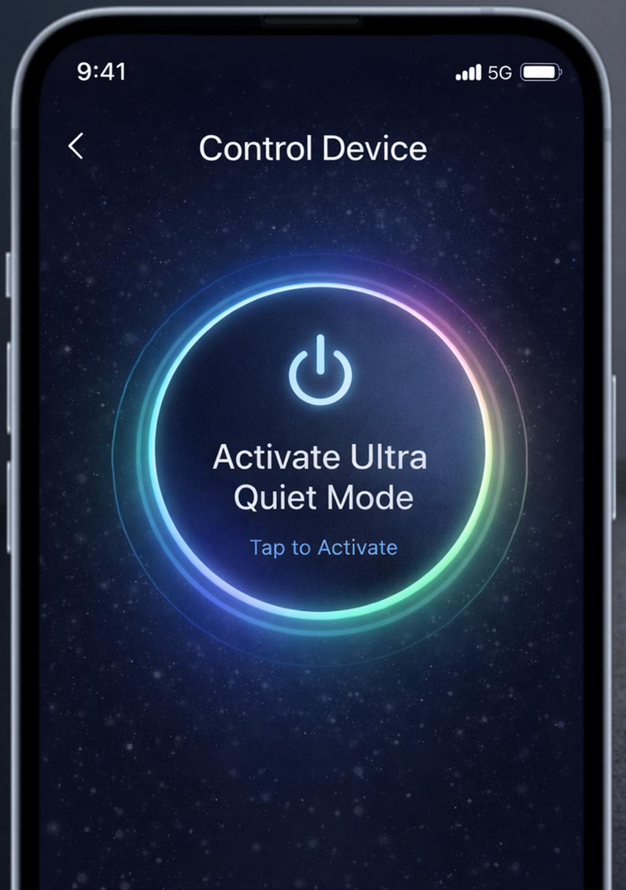


GOODWE

3rd Layer:

Silence in Your Hands - Industry’s first ultra silent mode

Instantly reduces noise beyond the base level, creating a deeper, disturbance-free space for demanding quiet scenarios.









GOODWE

Leading the Industry Toward Quiet Energy



300,000+

GOODWE Quiet Systems Already Delivered Worldwide
(SDT G3 & ESA Single Phase)

TÜVRheinland®
CERTIFIED

1st TÜV-Certified Low-Noise
Residential Integrated System

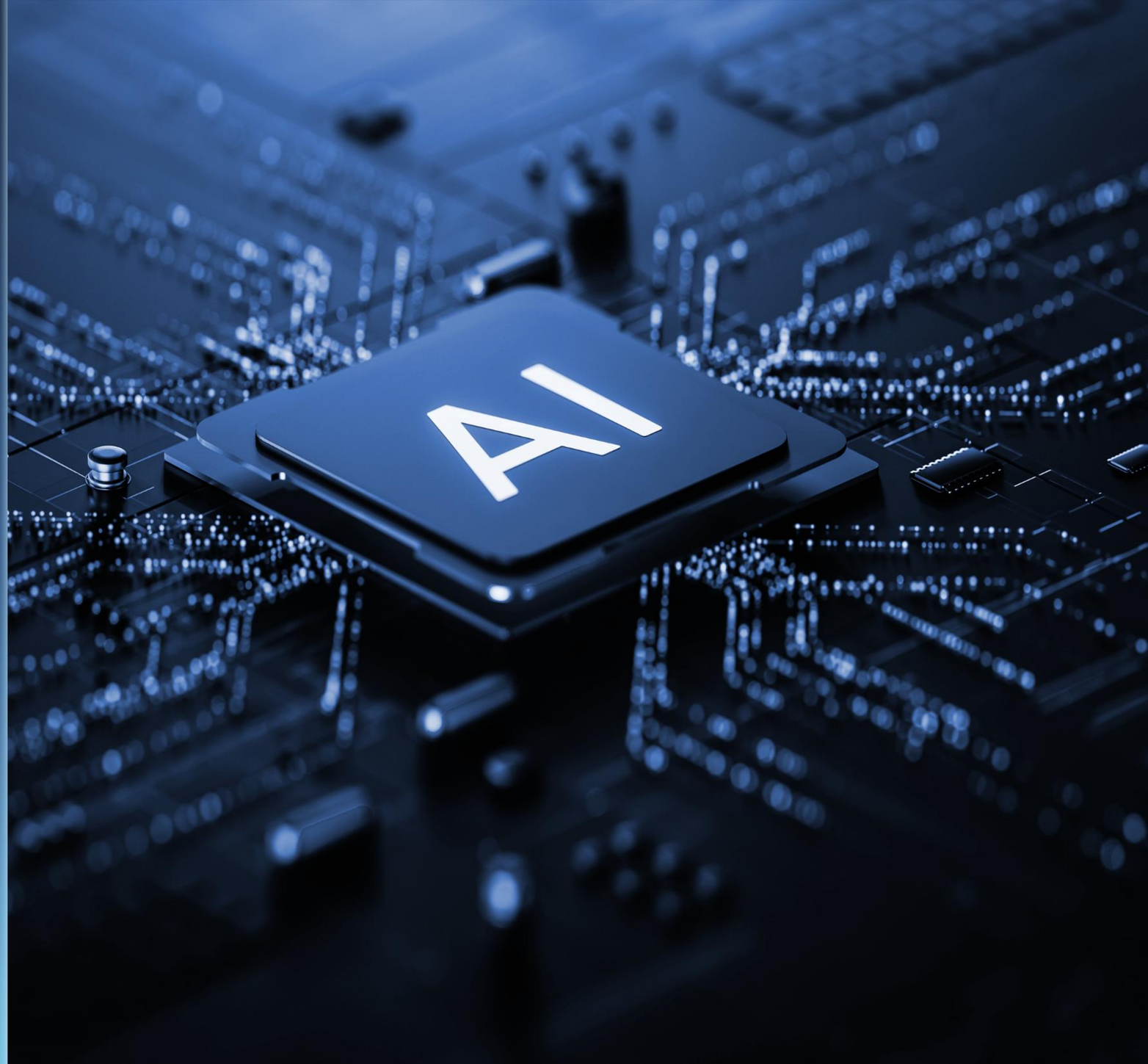
GOODWE

2nd “S”

Smart

Smarter AI. Knows You Better.

Up to 30% Bill Savings



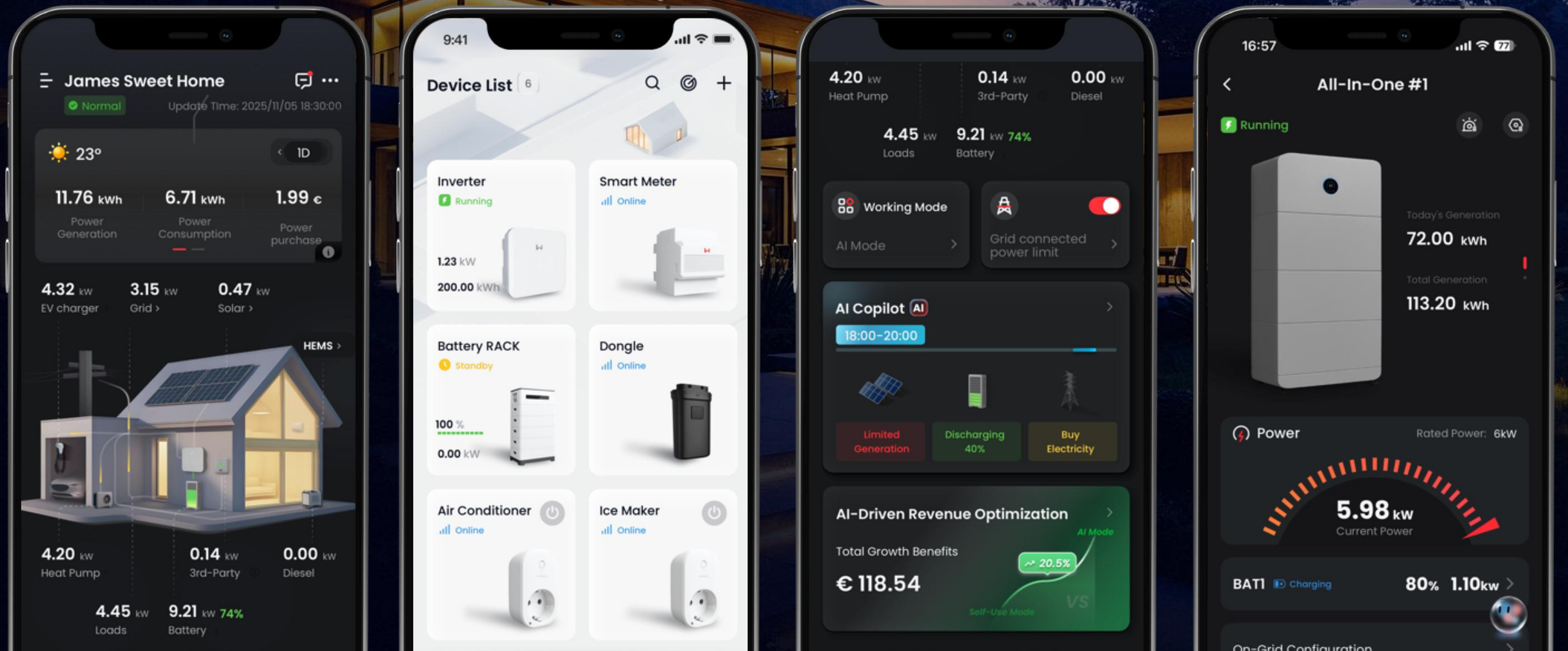
GOODWE

AI-driven Revenue Optimization

Up to **30%** Reduction of electricity bills

- Battery charge/discharge optimisation
- Power generation management based on weather forecasting
- AI-driven optimization

SEMS+



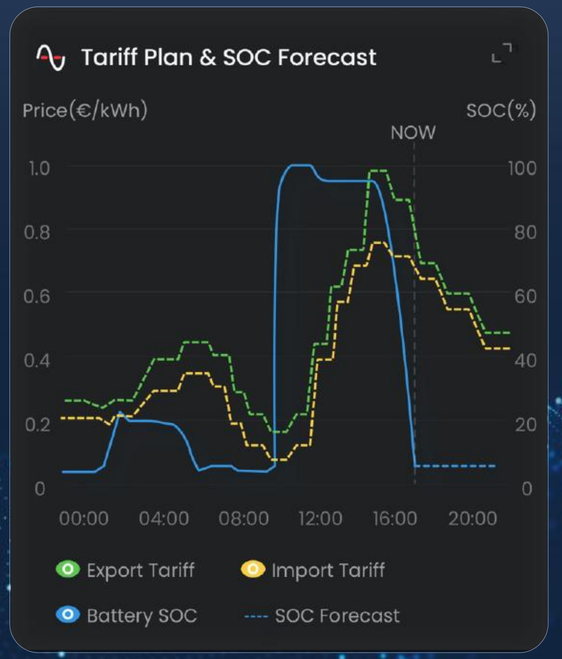
GOODWE

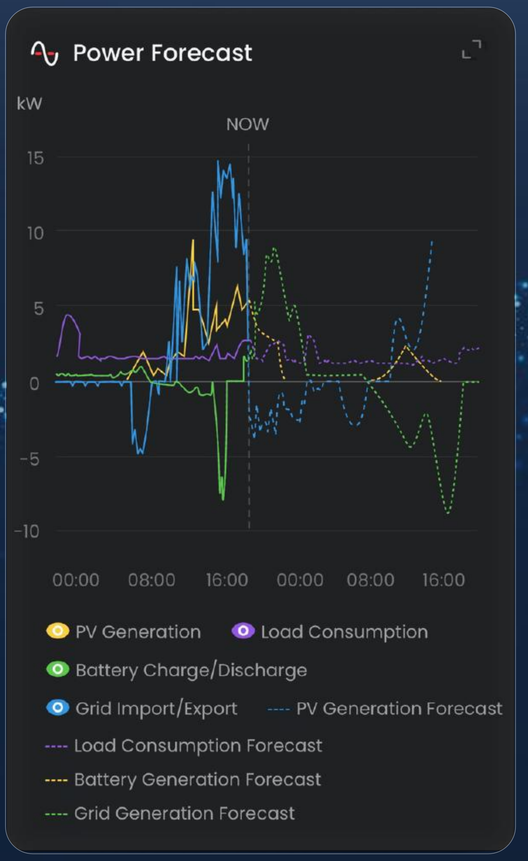
AI Copilot Power Optimization

Smart Schedule

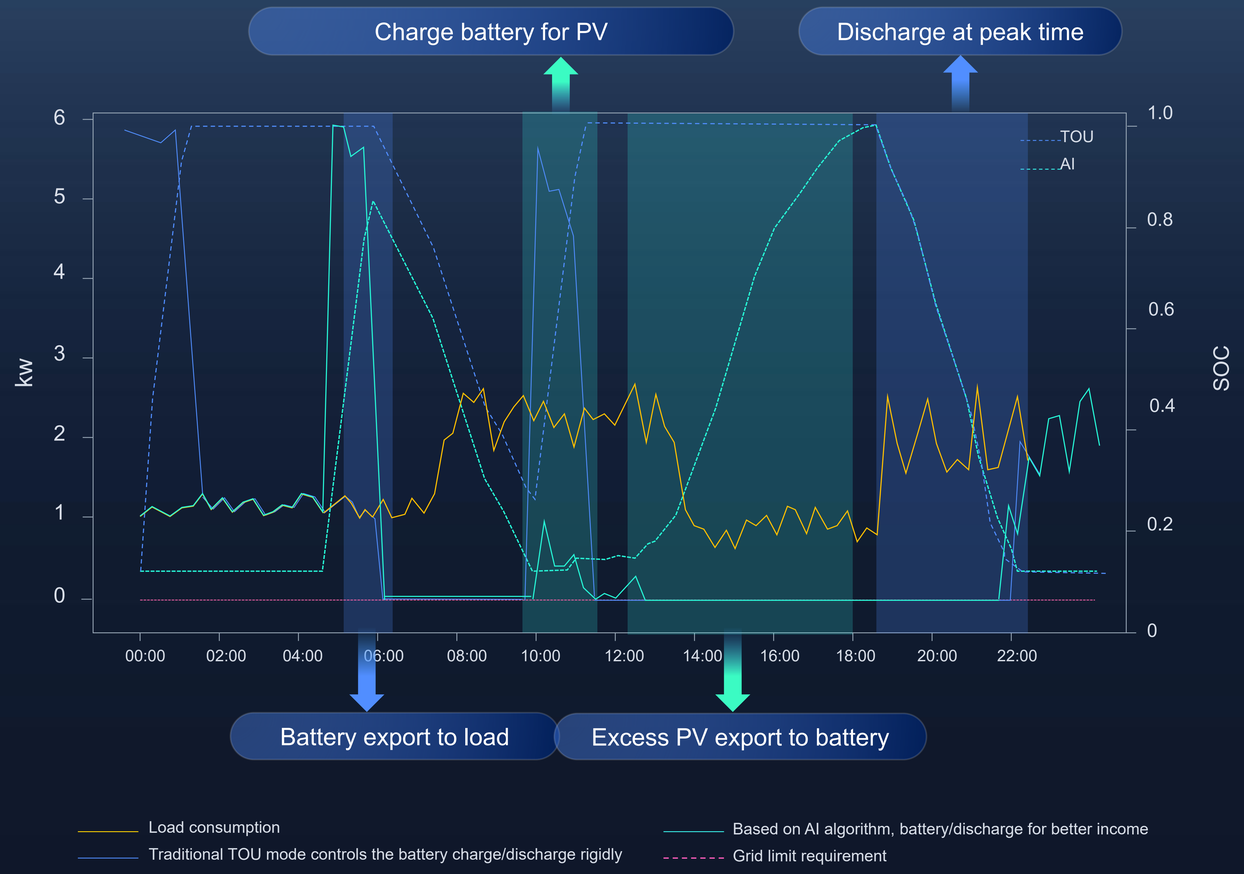


Energy Forecast

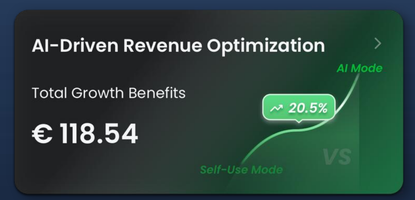


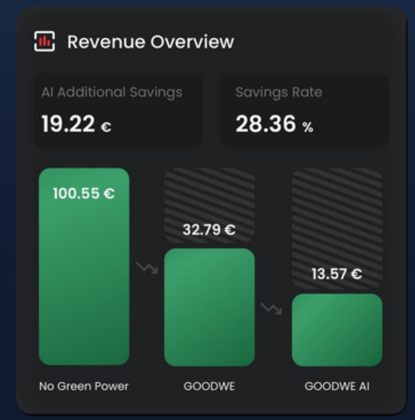


AI-driven System Control



AI Mode Cost Saving







Compared with the traditional TOU mode,

GoodWe HEMS can save **30%** of electricity bill !

GOODWE

Ultimate Home Energy Management Experience

HEMS-home energy management system

EzManager

- Create Hybrid ESS with wireless
- Smart load control
- PV/Load management based on weather forecasting
- Third-party access



GOODWE

3rd “S”

Secure

Safety Engineered at Every Level

6-Layer Protection



GOODWE

Six-Layer Safety Architecture for Complete Protection

From cell to system level, comprehensive safety mechanisms—including battery management, thermal monitoring, fire protection, and more—ensure reliable and secure operation under all conditions.

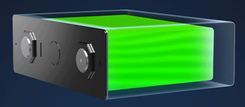


GOODWE

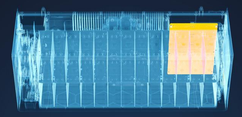
From Detection to Protection: Total System Safety

Cell-level Protection

Top-brand $LiFePO_4$ battery cell



Monitoring-level Protection

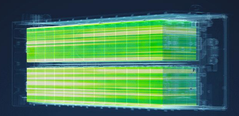


BMS compliant with ISO 13849 functional safety

Real-time battery health tracking



Electrical Protection



Short-circuit protection

Over-current protection

Pack-level DC Isolator
(Conforms to standard: TS5398/2025)

System-level Protection

Real-time interaction

Charging & discharging protection



Structural Protection

IP66

Die casting design

Blind-mate design



Emergency Protection



Integrated pressure relieve valve

Aerosol-based fire extinguishing

Safety and Reliability

AI-integrated AFCI technology

AFCI detects electrical arcs, cuts off the PV current and prevents fires caused by electrical arcs.



AFCI: Arc Fault Current Interrupter (integrated)
RSD: Rapid Shutdown (optional)

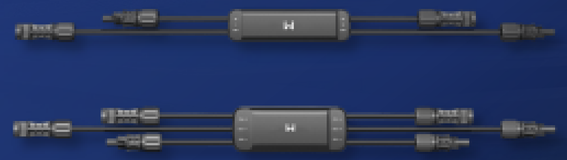
Safety and Reliability

AI-integrated AFCI technology

AFCI detects electrical arcs, cuts off the PV current and prevents fires caused by electrical arcs.

Rapid Shutdown

Disconnection of the circuit at the PV module level to ensure safe intervention



RSD Receiver

AFCI: Arc Fault Current Interrupter (integrated)
RSD: Rapid Shutdown (optional)

GOODWE

4th “S”

Simple

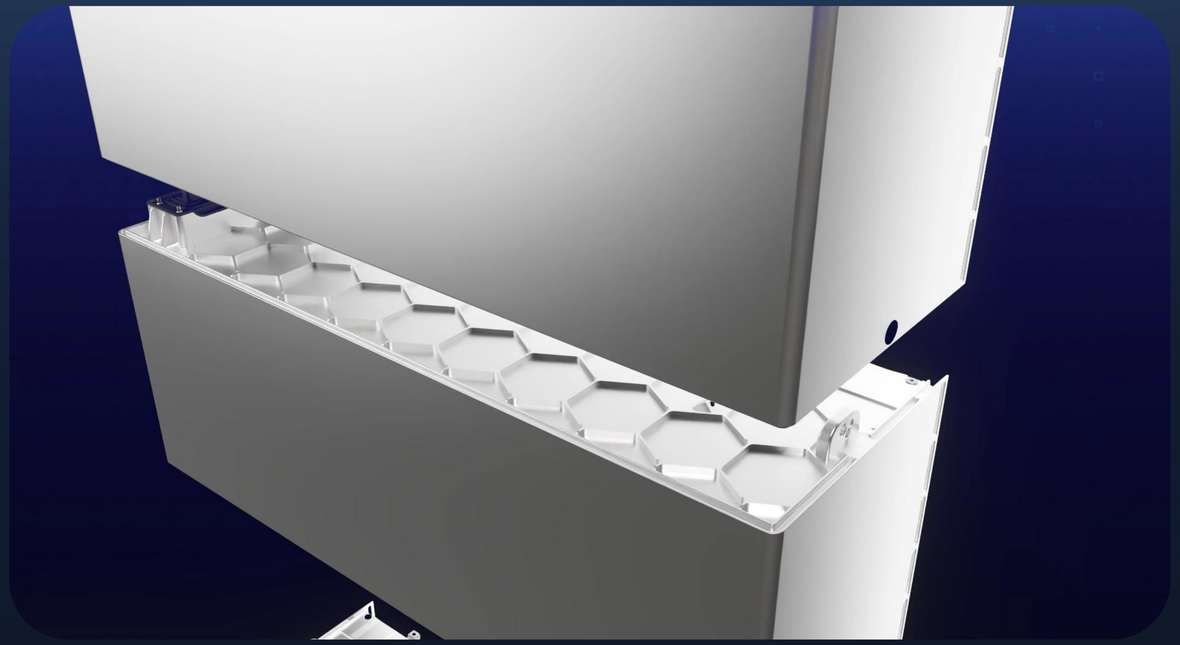
10-Minute Installation

Redefining the Fastest Installation Standard



GOODWE

Installer Friendly
Powering homes with simplicity





10-min from boxing to operation

1 APP controls all

1-click commissioning

0-accessories Backup integrated

GOODWE

4S System



Silent
30dB

Smart
AI

Secure
6-layer

Simple
10-min

GOODWE

4S System

200% PV Oversizing

-20ºC Reliable operation

Flexible storage

AFCI 3.0

1C & 0.5C Batteries

Smart load control

Silent
30dB

Smart
AI

Secure
6-layer

Simple
10-min

< 4ms backup switching

Unbalanced supply

Whole-home backup

GOODWE

200% effective PV oversizing

The 200% effective PV oversizing allows the battery to be charged (100%) and loads to be supplied (100%) simultaneously.

- **Higher rate of PV use**
- **Fully meet PV government subsidy**



GOODWE

Flexible Battery Mixing Expand Freely Future-ready

- Supports mixed battery capacities
- Supports new and existing batteries together
- 1C & 0.5C Technologies

GoodWe LXD G2 5kWh

GoodWe LXD G2 6kWh

GoodWe LXD G2 8kWh

GoodWe LXD G2 9kWh



1C capacity on LXD G2 5 and 8 kWh modules.
0.5C capacity on LXD G2 6 and 9 kWh modules.

GOODWE

Scalability

Single inverter configuration



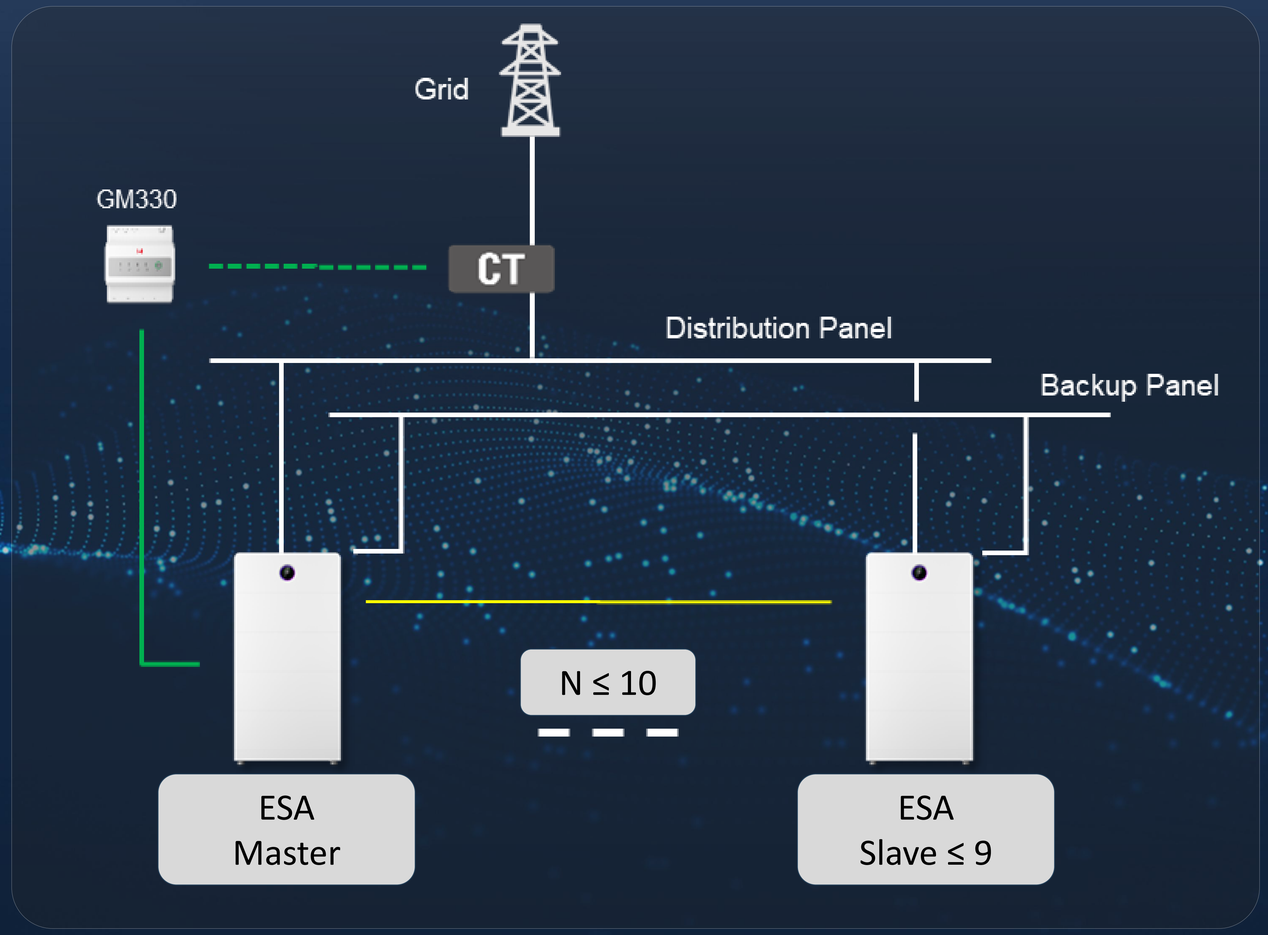


- Up to 12 battery modules per inverter
- Battery-ready setup possible
- Two towers configuration possible

Accessory (optional) required for configuration on two towers.

Scalability

Multiple inverter configuration



- Up to 10 inverters in parallel | On-grid & Backup
- Up to 1080 kWh storage
- Master-slave configuration
- Possibility of combining inverters of different powers
- Parallel solution without the need for a communication accessory

GOODWE

Robust and reliable even under extreme conditions

1 **0°C ~ +55°C**

Normal Operation

2 **-20°C ~ 0°C**

Heating technology ensures reliable performance



GOODWE

Your Home, Always On

Power on. Life uninterrupted. Peace of mind.

Up to 80A Bypass Current
Whole-home Backup

< 4ms Backup Switching
Power You'll Never Notice Go Out

Integrated Backup
100% All-in-One Solution

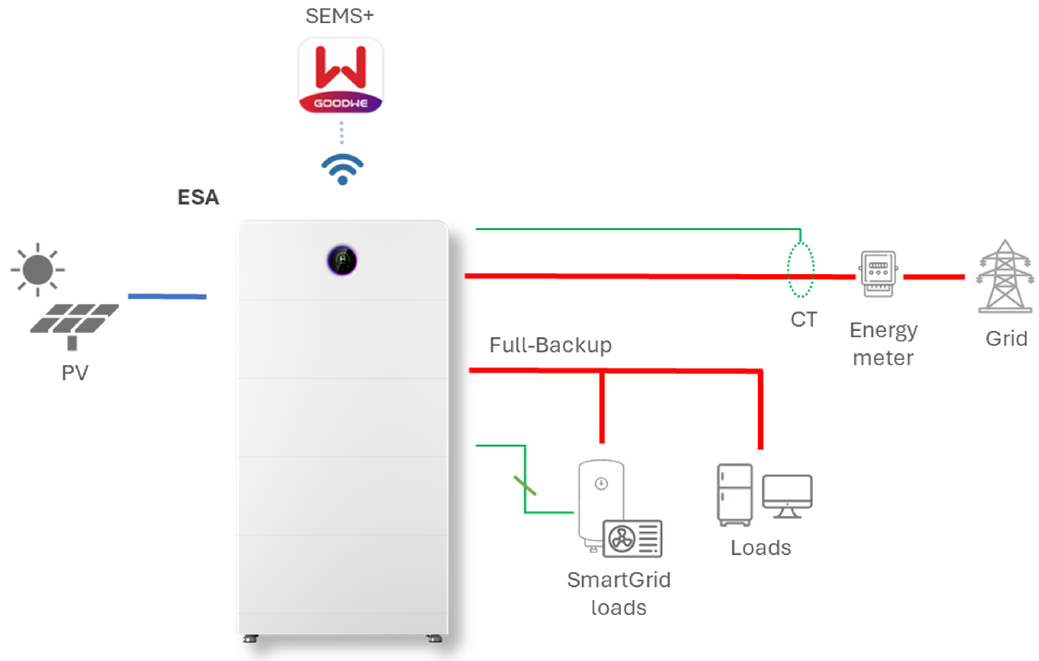


≤20kW **63A**

25-30kW **80A**

Smart Load Control

Managed consumption to increase the Self-consumption ratio



Load control allows solar PV energy surpluses to be stored as an alternative to electrochemistry (battery).





Heat Pump
Cooling | Heating

Water Heater

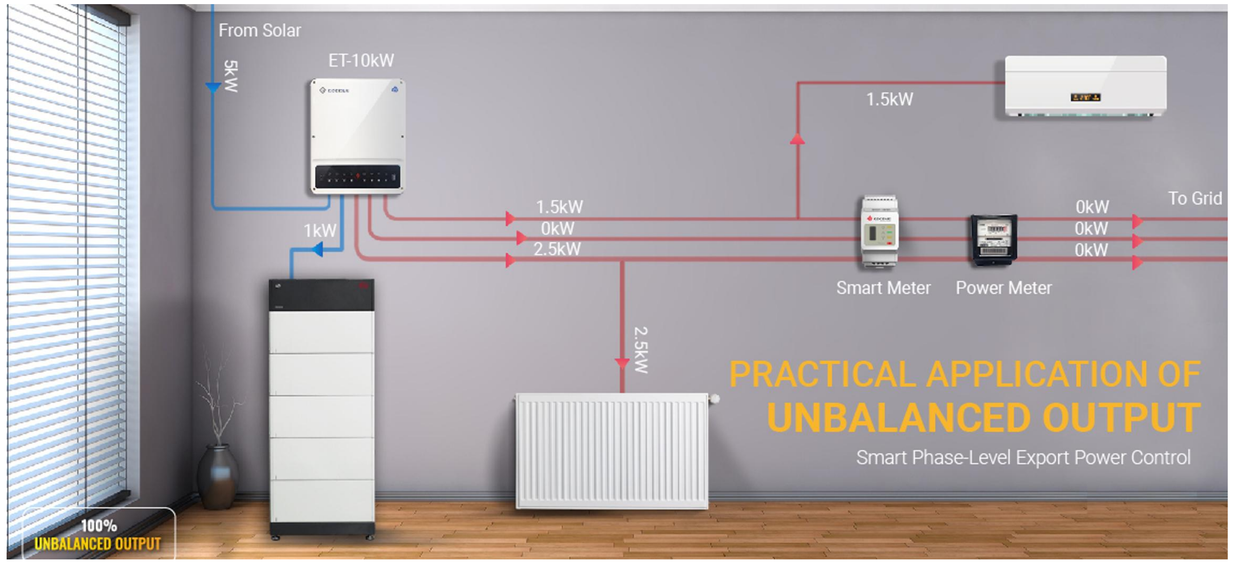
Feature available on:

- ES G2, ES Uniq 8-12K, **ESA 3-10K, ESA 5-30K**, ET Plus+, ET G2, ET 20-30 series
- XS G3, DNS G3*, MS G3*, SDT G3 4-20K series
- Setup via SEMS+ App

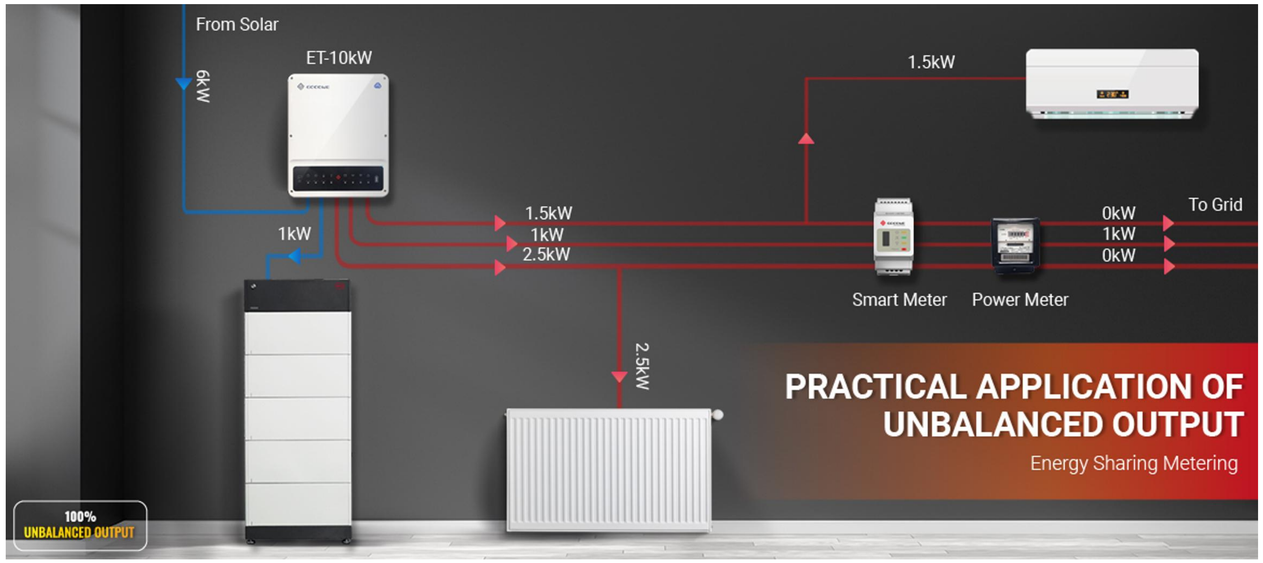
*Feature available on DNS G3 and MS G3 series manufactured after 17 December 2024.

100% Unbalanced supply

To supply variable power to each phase when consumption is unbalanced



0-injection at phase level scenario



Allowed energy export scenario

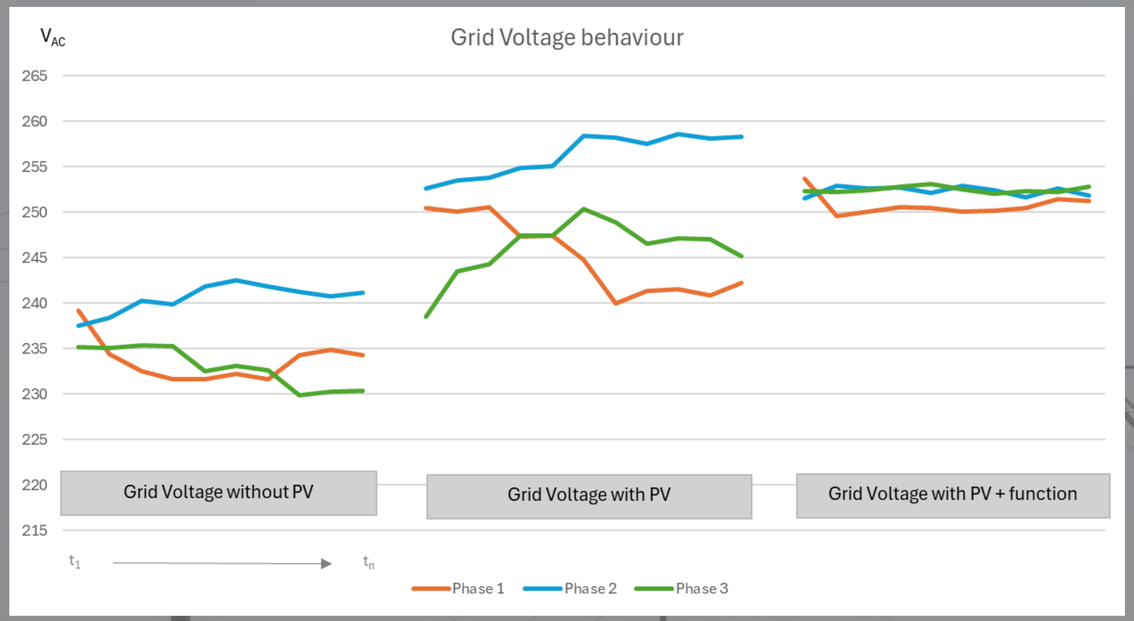
Feature available on:

- **ESA 5-30K**, ET Plus+, BT, ET G2, ET 20-30 series
- Setup via SEMS+ App
- Not battery required

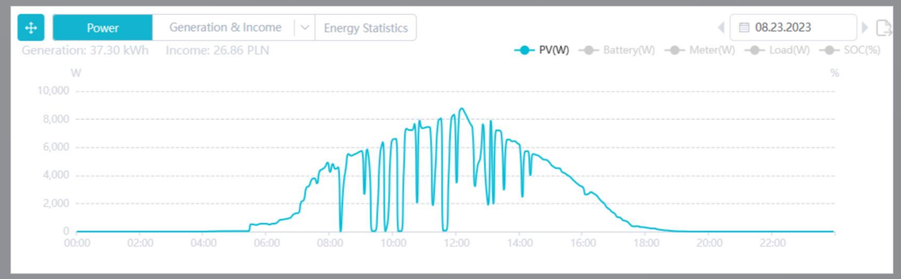
*Feature available on DNS G3 and MS G3 series manufactured after 17 December 2024.

Unbalanced Voltage Output function

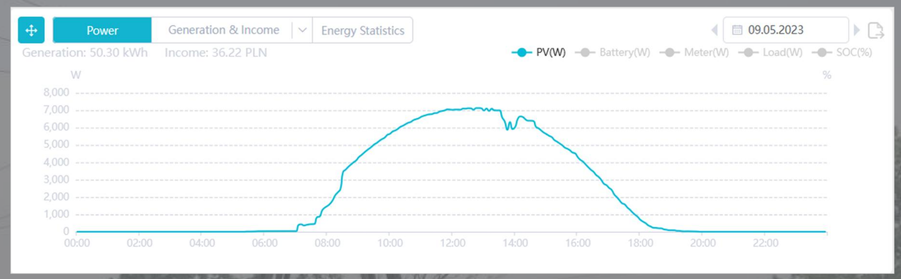
This function balances the output and helps to maintain system operation in grids with unbalanced voltage, stabilizing the grid



Case study: grid voltage behaviour in a rural area with a weak grid



System output power affected by unbalanced grid voltage



System output power with Unbalanced Voltage Output function

Feature available on:

- **ESA 5-30K**, ET G2, ET 20-30 series
- Setup via SEMS+ App
- Not battery required

All-in-One Solution – New PV System



- 200% PV oversizing
- Full backup | Up to 80A
- < 4ms backup switching
- Smart load control
- Unbalanced supply capabilities
- Up to 12 battery modules | 108 kWh storage
- 1C & 0.5C battery compatibility
- Heating technology | -20ºC operation
- Aerosol-based fire extinguishing
- AFCI 3.0

Retrofit Solution - PV Expansion



- Mixed parallel of GoodWe ESA and on-grid inverter to expand PV installed capacity
- Dual meter solution available for more complex monitoring and accurate control

Retrofit Solution – AC Coupled



- Add ESA on the AC side to achieve AC coupled function
- Third-Party on-grid inverter is available for the system
- Dual meter solution available for more complex monitoring and accurate control

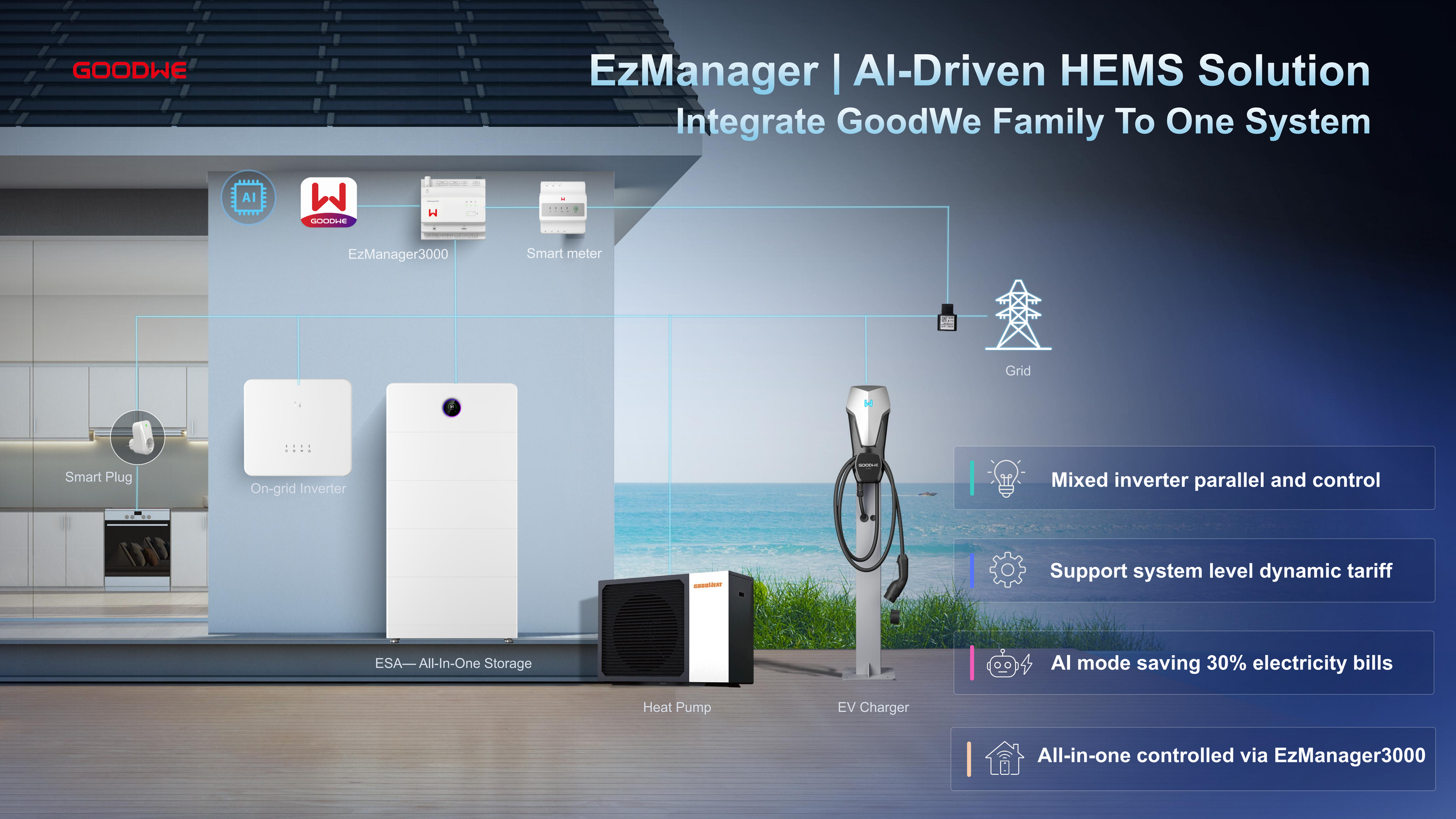
Microgrid Solution



- Up to 80A to support full house backup
- Keep on-grid inverter working with grid-forming function
- PV available even if grid-outage situation
- Easy cable connection

EzManager | AI-Driven HEMS Solution

Integrate GoodWe Family To One System



- Mixed inverter parallel and control
- Support system level dynamic tariff
- AI mode saving 30% electricity bills
- All-in-one controlled via EzManager3000


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SMART ENERGY FUTURE

PV Magazine Webinar

Heat Pump Introduction

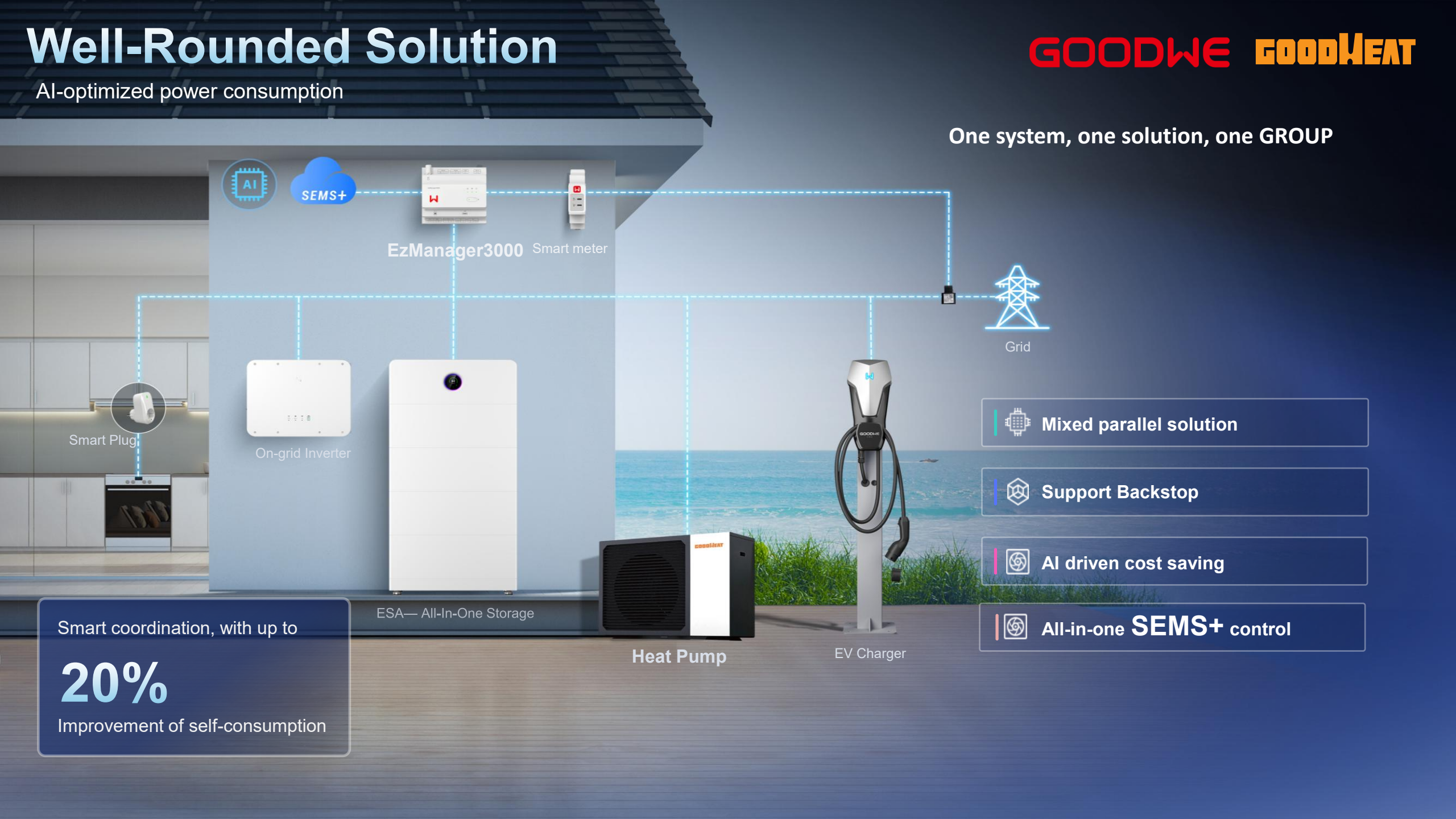


Well-Rounded Solution

AI-optimized power consumption

GOODWE GOODHEAT

One system, one solution, one GROUP



- **Mixed parallel solution**
- **Support Backstop**
- **AI driven cost saving**
- **All-in-one SEMS+ control**

Smart coordination, with up to

20%

Improvement of self-consumption

Company introduction

GOODHEAT, as a member of **GOODWE** Group, is located in Foshan, China. It specializes in the development, manufacturing, and sales of air to water heat pump products. Product range covers residential and commercial heat pump, heat pump water heater, swimming pool heat pump, etc.

The company has four explosion-proof laboratories complied with international standard, covering the development and validation of products which capacity ranges from 3kW to 500kW. It has five international automatic production lines with yearly capacity of 300,000 units.



Product portfolio



R290 ATW Product Selection for the European Market

GOODWE

NO	Name	Pro. Name	Specification
1	R290 Air To Water Heat Pump （220V~240V）	GSHVSH-6AA1	6KW
2	R290 Air To Water Heat Pump （220V~240V）	GSHVSH-8AA1	8KW
3	R290 Air To Water Heat Pump （220V~240V）	GSHVSH-10AA1	10KW
4	R290 Air To Water Heat Pump （220V~240V）	GSHVTH-12AA1	12KW
5	R290 Air To Water Heat Pump （220V~240V）	GSHVTH-16AA1	16KW
6	R290 Air To Water Heat Pump(380~415V)	GSHVTH-12AA1	12KW
7	R290 Air To Water Heat Pump(380~415V)	GSHVTH-16AA1	16KW
8	R290 Air To Water Heat Pump(380~415V)	GSHVTH-18AA1	18KW
1	Hot Water Heater - Wall Mounted (Enamel-Steel）	GHWSV(B)T-100AA1	100L – 1kW
2	Hot Water Heat Pump - Floor standing (Enamel-Steel）	GHWSV(B)T-150AA1	150L – 1kW
3	Hot Water Heat Pump - Floor standing （Enamel-Steell）	GHWSV(B)T-200AA1	200L – 1.5kW
4	Hot Water Heat Pump – Floor standing (Enamel-Steel）	GHWSV(B)T-300AA1	300L – 1.5kW

Enamel: Enamelled steel tank with sacrificial magnesium anode
Stainless Steel: Stainless steel tank

GOODHEAT

R290 Residential Air to Water Heat Pump





Single phase: 6kW 8kW 10kW 12kW 16kW
Three phase: 10kW 12kW 16kW



Three phase: 18kW

Residential Series

- Heating+Cooling+DHW Function
- European’s Future Main Stream
- Energy Efficiency A+++
- High energy efficiency and COP
- Operating Ambient temp **-25℃**
- Max Outlet Water Temp **75℃** (at -15°C external temperature)
- High flexibility Up to 16 machines in parallel
- IOT Function
- Smart grid readiness

Heat Pump Water Heater



Top Discharge Design

- Optiomal for indoor installation (Optional with Duct)
- 150g of R290 refrigerant design (European Regulation)
- European Energy Class: A+ (According to UNI EN 16147)
- 100L / 150L / 200L / 300L model range
- Automatic Sterilization
- Full DC Inverter Technology
- 1.5KW electric auxiliary heating function to meet emergency needs
- High Efficiency Micro-Channel Heat Coil
- High Quality Enamel Water Tank or Stainless Steel Water Tank





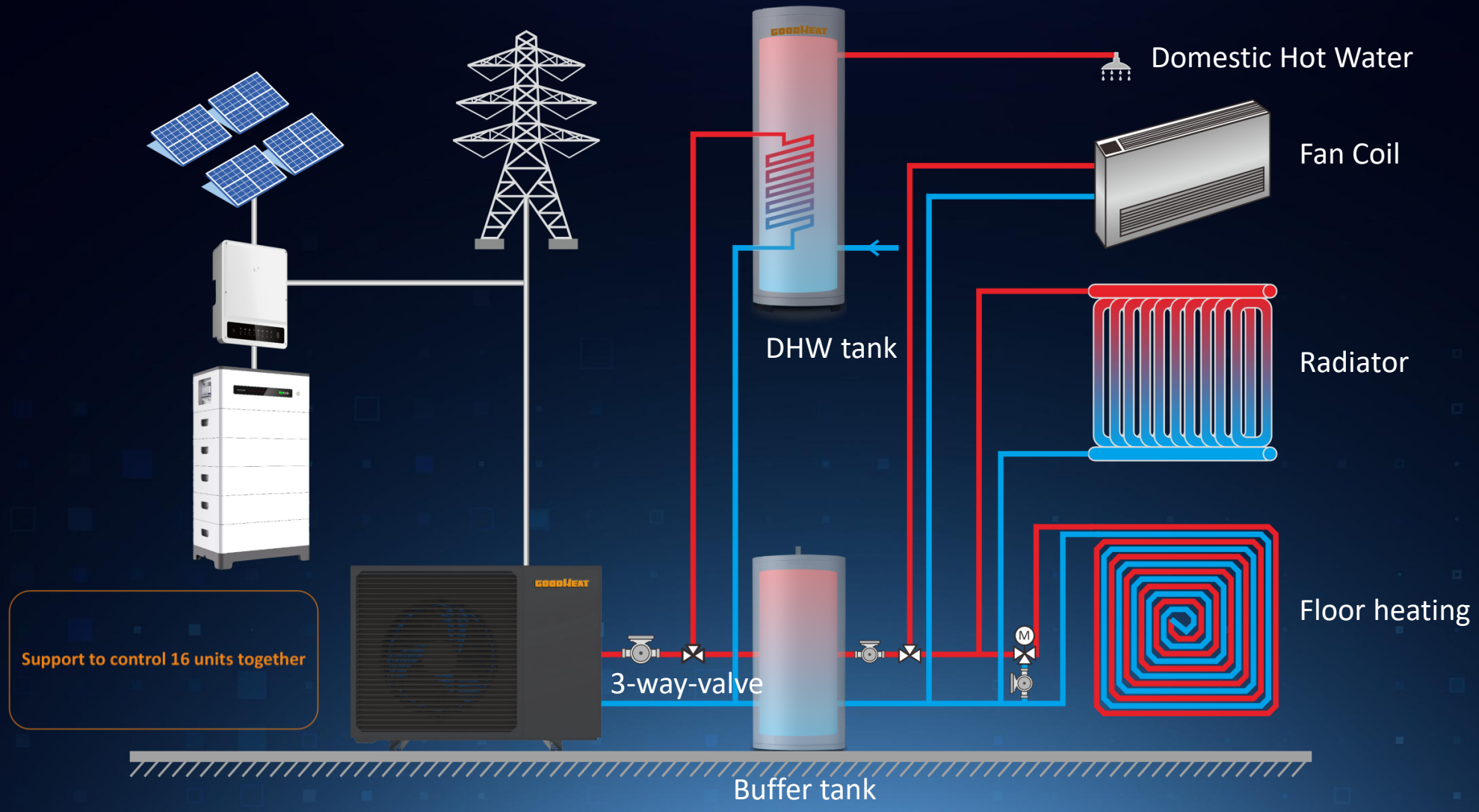
Features

GOODWE

Double zone control

The heat pump can control two different zones, providing different water temperature through the mixing valve and circulation pumps.

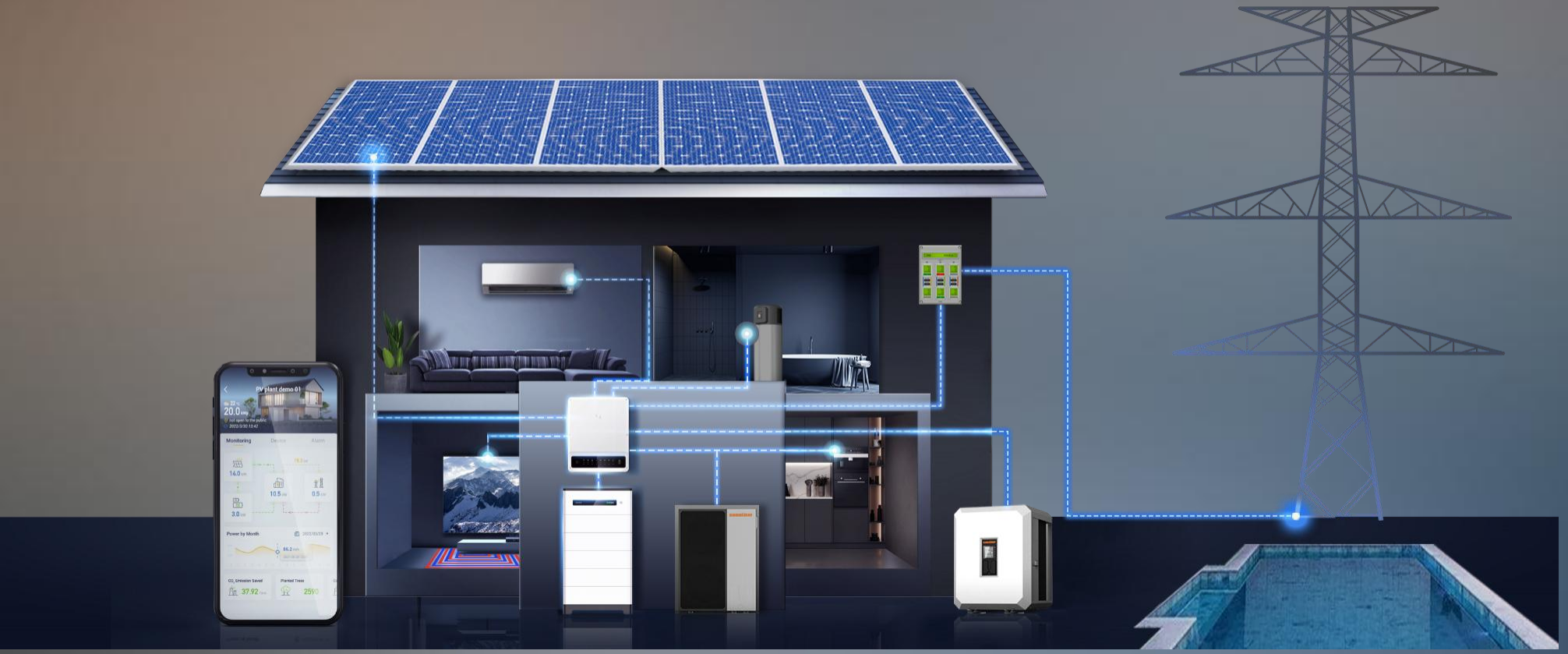
Application system diagram



GOODHEAT

SEMS Application for HP & DHW

One system, one solution, one GROUP




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pv magazine webinars

Building the all-electric home: integrating solar, storage, EV charging and heat pumps quickly and cost effectively

13 April 2026

2:00 pm – 3:30 pm | BST, London
3:00 pm – 4:30 pm | CEST, Berlin



Matthew Lynas
Editor
pv magazine



David Sørensen
Owner
JK Elektro



Ranj Rauf Latif
Founder & Managing Director
BayernWatt



Stijn van de Vondervoort
Director / Co-owner
Divo B.V.

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Matthew Lynas
Editor
pv magazine



Tadeusz Ogarek
Director of the Technical Department and R&D
KENO Energy



Mark Wells
Technical Director
Wagner Renewables

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PV Magazine Webinar

Case Study: JK Elektro AB

David Sørensen | Owner



JK Elektro



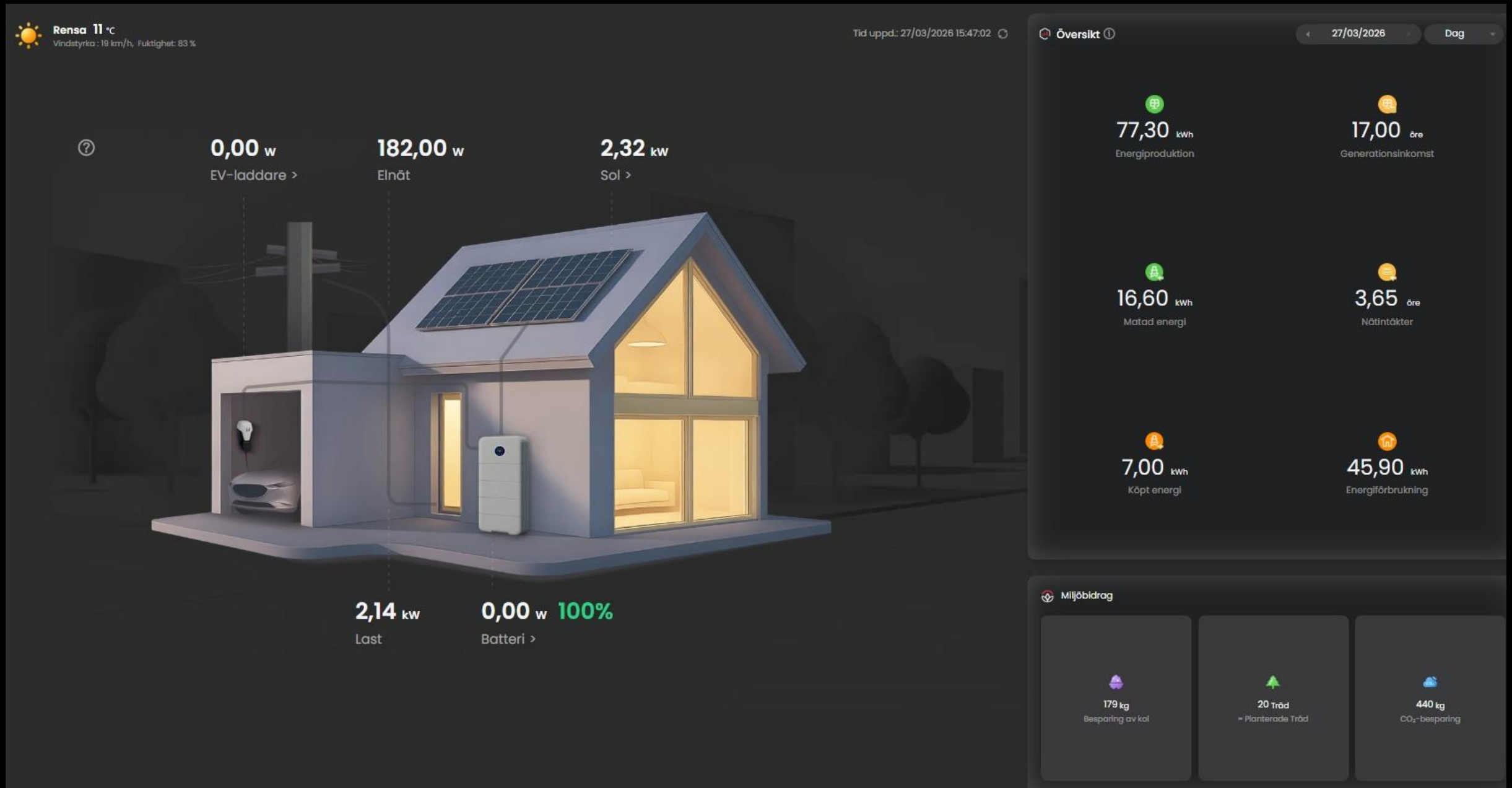
Vi hjälper er med allt inom el

JK Elektro


Nordmount
Nordmount
Parkys
EcoSmart
Home
Energihanteringssyste
emmet
HEMS
22kW
GOODWE
GOODW
JK Elektro


JK Elektro

JK Elektro


Rensa 11 °C
Vindstyrka : 19 km/h, Fuktighet: 83 %
Tid uppd.: 27/03/2026 15:47:02
0,00 W
EV-laddare >
182,00 W
Elnät
2,32 kW
Sol >
2,14 kW
Last
0,00 W 100%
Batteri >
Översikt
27/03/2026
Dag
77,30 kWh
Energiproduktion
17,00 öre
Generationsinkomst
16,60 kWh
Matad energi
3,65 öre
Nätintäkter
7,00 kWh
Köpt energi
45,90 kWh
Energiförbrukning
Miljöbidrag
179 kg
Besparing av kol
20 Träd
= Planterade Träd
440 kg
CO2-besparing

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DRIVING THE WORLD'S SMART ENERGY FUTURE

PV Magazine Webinar

Case Study: BayernWatt GmbH

Ranj Rauf Latif | Founder & Managing Director





ESA All-in-One in Practice

Installer Experience by BayernWatt

About Us

- BayernWatt GmbH, Bavaria
- Focus on solar and modern energy solutions
- Helping customers reduce costs and use clean energy



Ranj Rauf Latif
Managing Director Bayern Watt GmbH
info@bayernwatt.de

Project Overview

- Location: Wernberg-Köblitz, Germany
- 37 solar panels
- Inverter Power: 15 kW (nominal)
- PV Capacity: 17.02 kWp (37 × 460 W modules)
- Required Storage Capacity: 8.3 kWh



➢ Efficient use of available roof space.

Customer Objective

- Maximize self-consumption
- Reduce dependency on the public grid
- Hedge against rising electricity prices

Expected Performance

- Self-consumption rate: ~70–80%
- Electricity cost reduction: ~70%

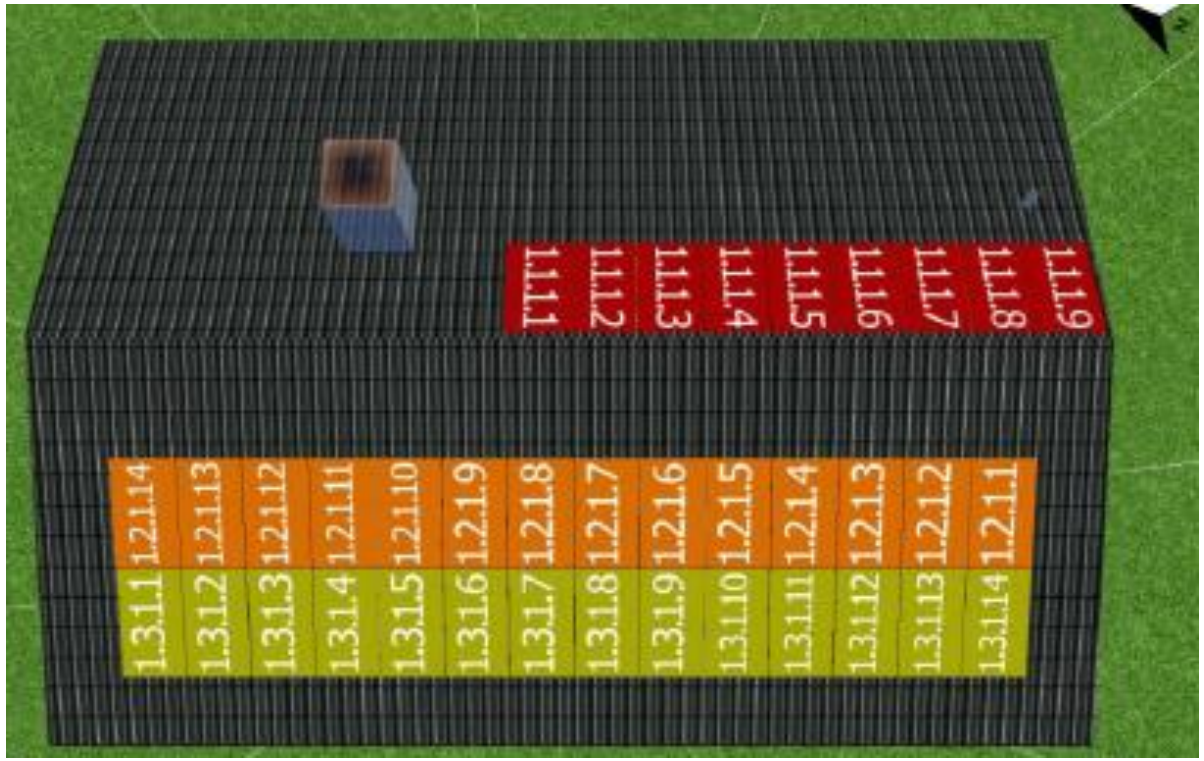
Key Features Used

- Full backup functionality
- Peak shaving
- Intelligent load management (self-consumption optimization)
- Asymmetrical phase supply (flexible load distribution)
- AFCI (Arc Fault Circuit Interruption)
- RSD (Rapid Shutdown for enhanced safety)

System Setup

- ESA Model: 1× ESA All-in-One 15 kW inverter
- Storage: 8.3 kWh
- PV system split across 3 MPPTs
- ESA All-in-One provides 4 MPPTs
- 15 kW system

➢ More flexibility with additional MPPT capacity.



Installation Process

- Base aligned first
- Battery modules stacked modularly
- Inverter installed in the same way

➢ Modular setup, similar to building blocks.

➢ It is recommended to plan at least two people for installation.



Installation Process: Connections

- Connections located on the right side
- Includes manual on/off switch
- Clean and structured layout



Installation Process: Operation

- Rotary switch for initial startup
- Controlled via on/off button afterward

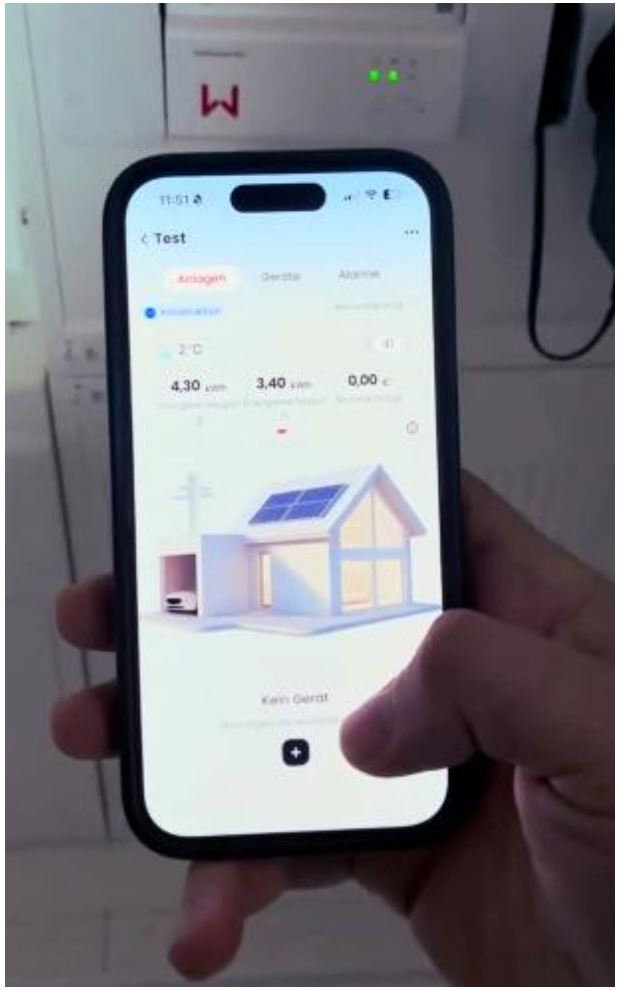
➢ Simple and intuitive operation.



Installation Process: App

- Setup via SEMS+ app
- QR code scan
- Device added automatically

➢ Setup completed in just a few steps.



Conclusion

- Very quiet operation
- Easy installation
- Clean and modern design

The DACH market is moving towards:

- Simplicity
- Independence
- Smart energy usage

➢ ESA All-in-One delivers exactly that.



THANK YOU!

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DRIVING THE WORLD'S SMART ENERGY FUTURE

PV Magazine Webinar

Case Study: Divo B.V.

Stijn van de Vondervoort | Director



Stijn van de Vondervoort
Co-Owner | Divo B.V.
The Netherlands



ABOUT DIVO

Founded in **2018**
30 FTE

Divo provides total solutions
for the residential market.

driven by our philosophy
"techniek met visie"

combining innovative technology
with a forward-thinking approach.

ABOUT ME

30 years old | Entrepreneur for 8 years
Active in solar energy since 2012
Skilled in electrical systems, refrigeration technology, and installations

OUR CORE SOLUTIONS:

- Solar energy systems
- Battery storage
- Heat pumps
- Smart home & energy management

GoodWe ESA Battery (Intro & Installation)

Beta Test Experience:

- Complete system (all-in-one)
- Fast and easy installation
- High-quality finish
- Built-in meter
- Compact design
- SEMS portal with AI support



Why this battery for us is so interesting:

- Peak shaving (cost savings)
- Grid congestion in the Netherlands
- Limited or no feed-in possible
- Backup during power outages
- Increased self-consumption
- Time-of-use optimization
- Widely applicable (retrofit AC or new installations)
- Open for third-party EMS integration

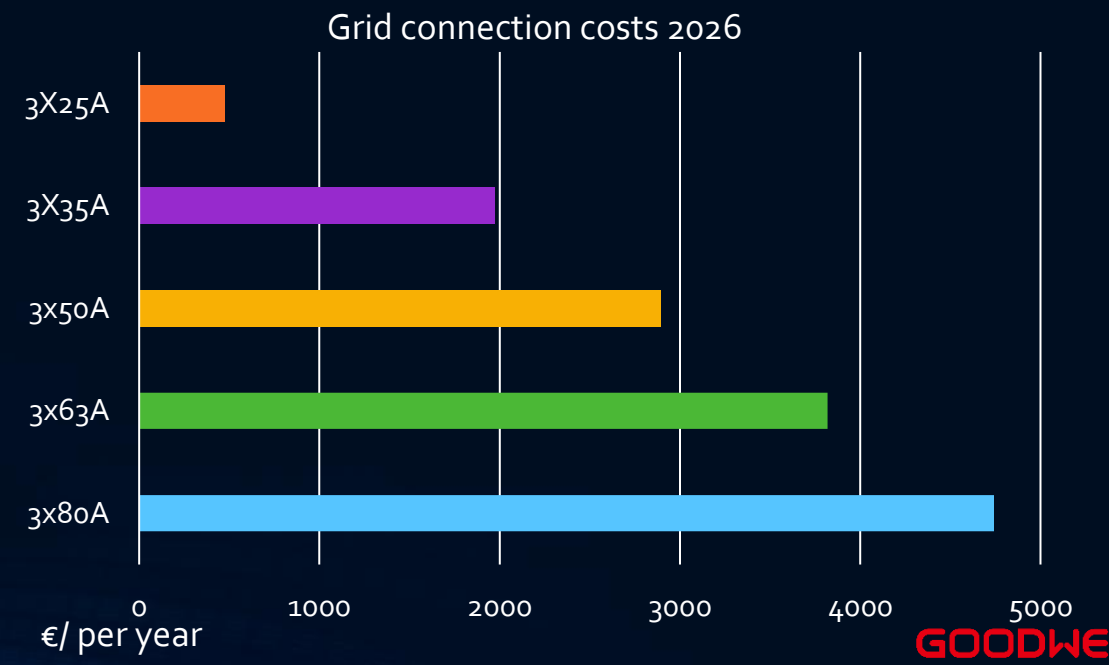


Peak shaving case (Financial Impact)

- Household with high peak demand (heat pump, EV charger)
- Requires 3 × 35A connection due to peak loads
- Battery reduces peaks ⟶ enables 3 × 25A connection
- **No grid upgrade required**

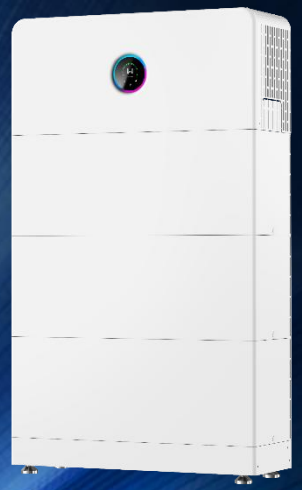
- With peak shaving, the customer can reduce their grid connection from 3×35A to 3×25A, resulting in a direct saving of around **€1,495 per year** on grid costs alone.
- If the customer also has solar panels, the battery increases self-consumption and enables smart energy use through time-of-use optimization.
- This makes the system not only technically interesting, but also financially very attractive.

	Current Situation	Peak shaving Situation
Grid connection	3 × 35A (40A breaker)	3 × 25A
Peak demand	High	Controlled (battery)
Annual cost	€ 1,971	€ 476
Grid upgrade needed	Yes	**No**
Annual savings €/ per year		**€ 1,495**



A Strong Business Case for Energy Storage (Final Conclusion)

- Growing demand due to rising energy prices
- All-in-one system (battery + inverter)
- Easy integration for new and existing installations
- Peak shaving → direct cost savings
- Smart control (SEMS + AI)
- Backup functionality (energy security)
- Proven in beta test → reliable & easy to install
- Future-proof solution for grid challenges



Based on our experience and market demand, I believe we will sell a lot of these systems.
We already have a large solar customer base, making retrofit easy. At the same time, demand for new systems is increasing. Combined with the all-in-one design and direct savings through peak shaving, this makes it a very strong and scalable product.

Stijn van de Vondervoort – Divo B.V.

Thank you for your attention



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DRIVING THE WORLD'S SMART ENERGY FUTURE

PV Magazine Webinar

Case Study: KENO

Tadeusz Ogarek | CTO





KENO | GOODWE

ESA TEST RESULTS

by KENO Sp. z o.o.

INTERNATIONAL REACH OF THE KENO GROUP

KENO



18
YEARS

EXPERIENCE IN
THE PV MARKET

7
COMPANIES

FOREIGN ENTITIES

>30
COUNTRIES

SERVICE AND EXPORT
OF SOLUTIONS TO
OVER 30 COUNTRIES

1
TOP

AMONG DISTRIBUTORS
IN POLAND

3
TOP

AMONG THE LARGEST
DISTRIBUTORS
IN EUROPE

SCOPE OF FUNTIONS IMPORTANT FOR POLISH MARKET



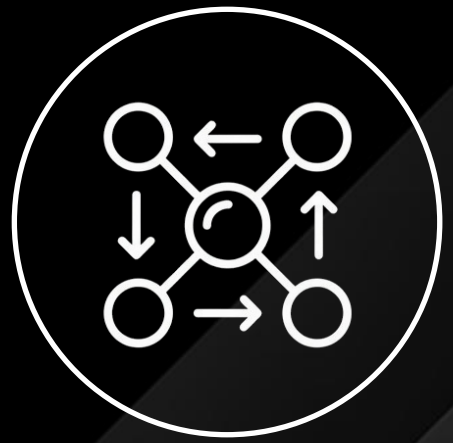
DYNAMIC TARIFF

support



EMS FUNCTIONALITY

for maximizing economic benefit



INTEGRATION with third party EMS

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KENO HOME SITE SPECIFICATION

GoodWe - GW10K-ETA-G20 with GW8.3-BAT-D-G20 and EzManager3000



Keno Home Gliwice



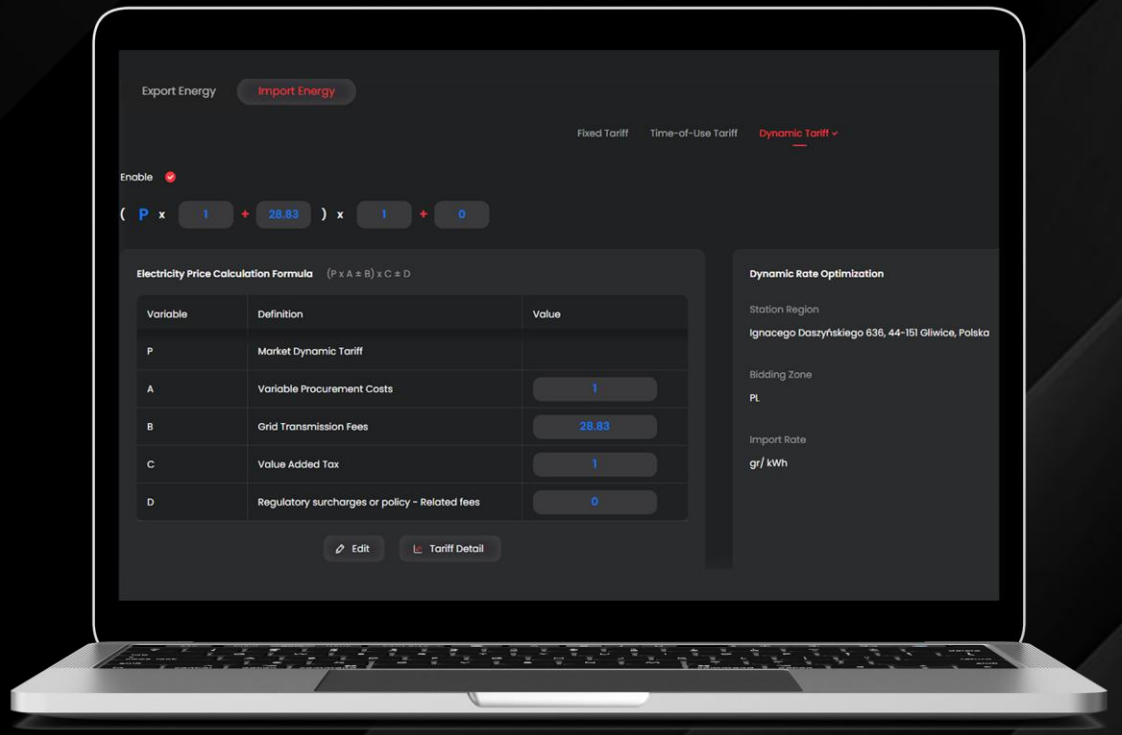
All-in-One ESA (10 kW + 8.3 kWh)

KENO | GOODWE

DYNAMIC TARIFFS WITH GOODWE



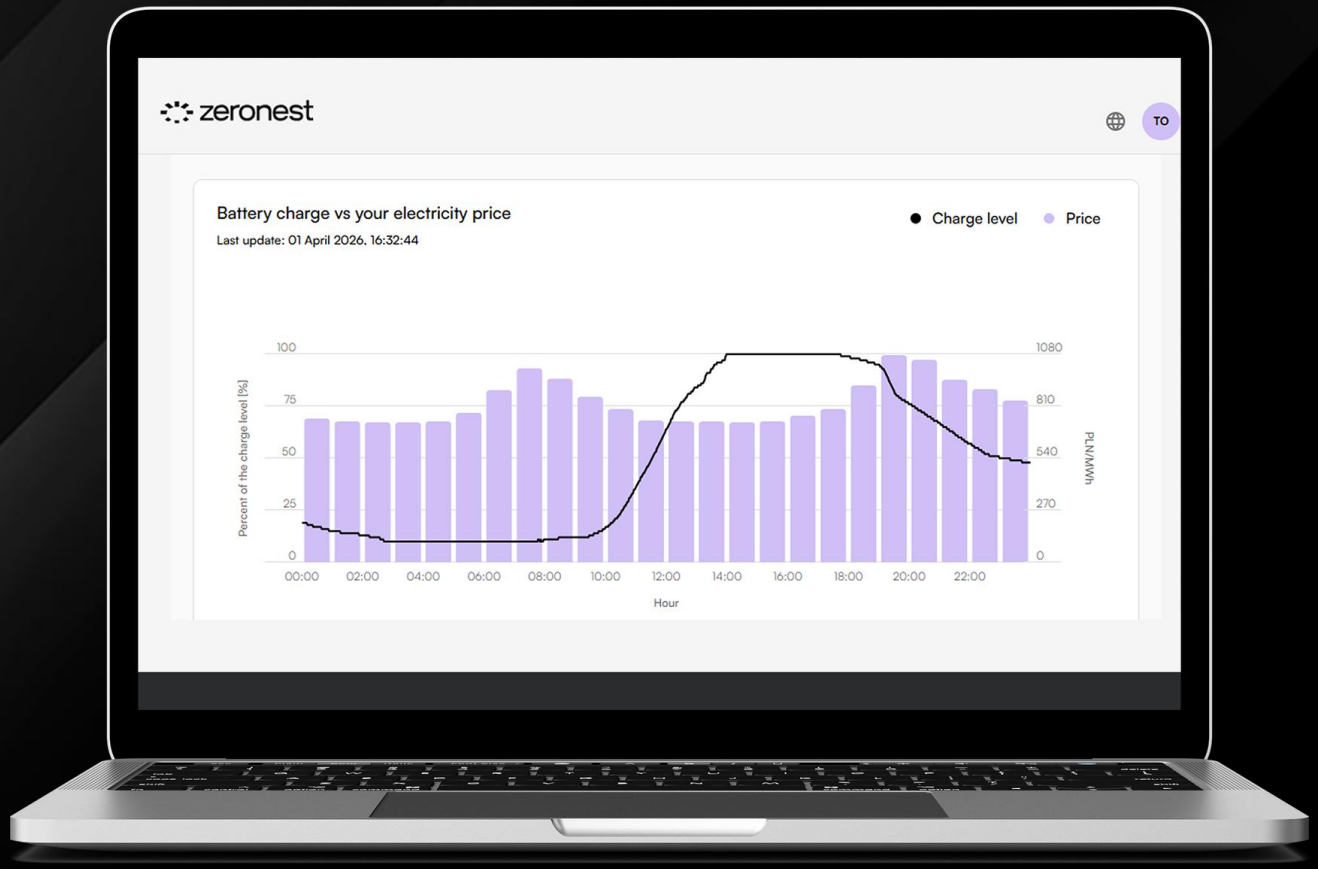
SEMS+ Visualisation



SEMS+ Dynamic price setting

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THIRD PARTY EMS IN CONTROL OF GOODWE ESA



Zeronest Visualisation



Zeronest EMS

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THANK YOU
For your attention!

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DRIVING THE WORLD'S SMART ENERGY FUTURE

PV Magazine Webinar

Case Study: Wagner Renewables Ltd.

Mark Wells | Technical Director



Goodwe ESA Case Study

Solar PV and EESS



About Wagner Renewables

Founded in 2010, Wagner Renewables is a leading UK provider of solar energy solutions, specialising in both professional installations and trusted product distribution. As an MCS-accredited installer, the company has delivered over 6MW of solar PV across commercial, agricultural, and domestic properties throughout the UK. Wagner Renewables designs and installs tailored renewable energy systems, integrating Solar PV, Battery Storage, and EV Charging Solutions, to help customers achieve energy independence and long-term savings.

Alongside its installation services, Wagner Renewables is a key UK distributor for several industry-leading manufacturers, including GoodWe, JA Solar, and Solarfox. The company supplies a comprehensive range of renewable energy products to installers nationwide, providing expert technical support, reliable stock availability, and exceptional customer service.

Committed to sustainability and innovation, Wagner Renewables not only helps homes and businesses reduce their carbon footprint but also gives back to the environment by planting trees in UK The National Forest and supporting local green charities. Through a balance of expertise, integrity, and environmental responsibility, Wagner Renewables continues to drive the UK's transition toward cleaner, smarter energy.

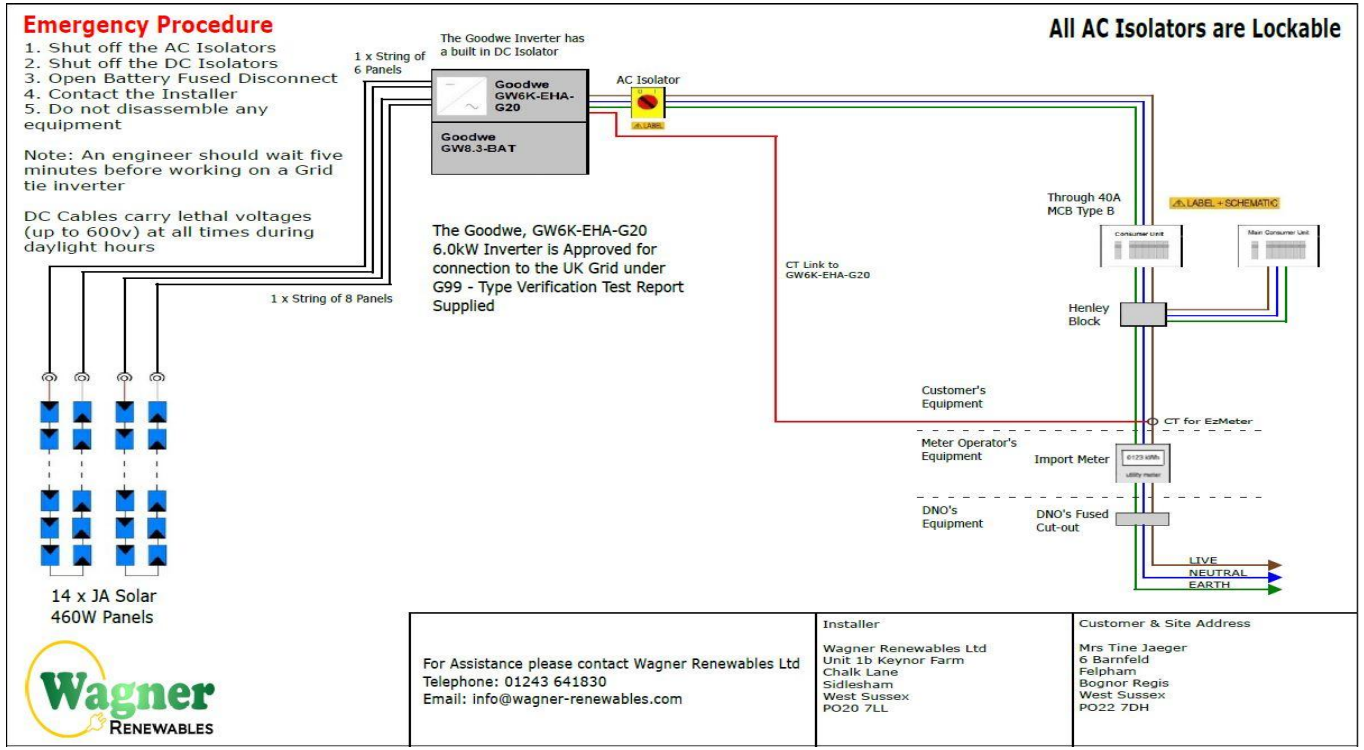
Location



Wagner Renewables is located on the South Coast of England, in the county of West Sussex. Our headquarters, based in the PO20 region, sit between the cities of Portsmouth and Brighton, with excellent access to major transport links and coastal logistics routes.

This strategic position allows us to efficiently support customers and partners across the UK and internationally, ensuring reliable distribution, technical support, and project delivery.

Technical Proposal



Nominal power of the System: 6kW

PV Array: 6.44 kWp

Storage capacity required: 8.3kWh

Main objective of the project: Self consumption / Export under SEG (Smart Export Guarantee)

Expected/intended objective: 18% Self-consumption ration, 82% Export to the Grid

Constraints to be considered: N/A

Implemented Solution



Mounting System: Wagner TRIC A

Inverter: 1 x GoodWe GW6K-EHA-G20

Storage: 1 x GoodWe GW8.3-BAT-D-G20

Operation mode: Self Consumption, with the option of TOU in the Winter

Export: SEG Tariff £0.12 per kWh

Customer Project Overview





Summary:

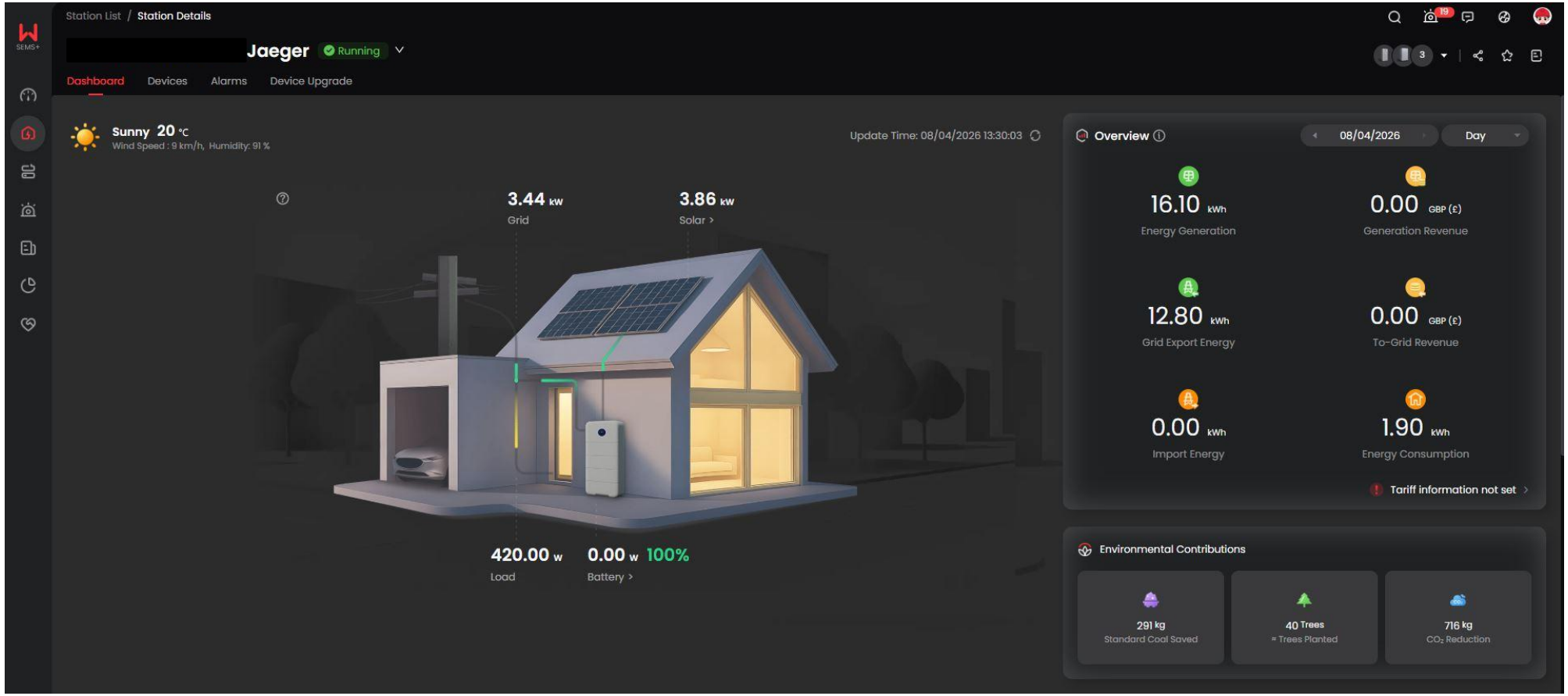
Mrs. Jaeger is a retired homeowner with low energy consumption whose primary motivation for installing a Solar PV and Energy Storage System (EESS) was to reduce her reliance on the National Grid and lower her personal carbon footprint. The system was intentionally designed with additional capacity to future-proof her home, allowing for the planned installation of a heat pump and enabling her to take full advantage of the UK's Smart Export Guarantee (SEG) tariffs. By exporting surplus energy, she is able to maximise her return on investment.

The GoodWe ESA system was selected for its high quality, robust safety features, outdoor installation capability, and flexible scalability. Its design allows for future expansion of battery storage without compromising performance or system balancing, ensuring long-term reliability and adaptability for Mrs. Jaeger's evolving energy needs.

Monitoring

SEMS+

The end client loves the clear energy flow and information provided by the Dashboard of the SEMS+ Portal, giving her up to date usage and system performance, allowing her to build the case to expand her storage capacity.



Post Installation Performance

SEMS+ Performance Review

Below are the Consumption Monitoring for March 2026, showing Solar PV Generation 496.9kWh, with 335.8kWh being Exported to the Grid at 12 pence per kWh, the stats show 96.3% self consumption from Solar / EESS and only 4.9kWh Import from the Grid for a Month, the end client is very happy with choosing Wagner Renewables Ltd and the Goodwe ESA Solution.





Design Supply Support

Wagner Renewables Ltd

www.wagner-renewables.com

info@wagner-renewables.com

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pv magazine webinars

13 April 2026

2:00 pm – 3:30 pm | BST, London

3:00 pm – 4:30 pm | CEST, Berlin

Building the all-electric home: integrating solar, storage, EV charging and heat pumps quickly and cost effectively

Q&A



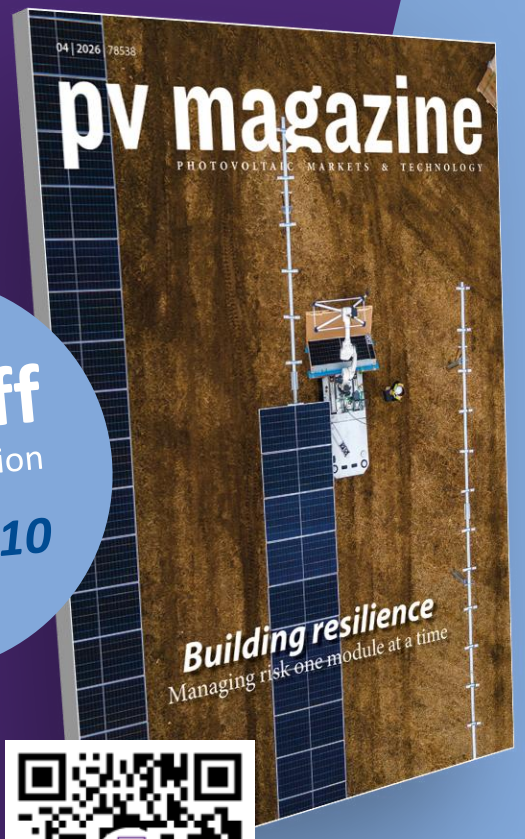
Matthew Lynas

Editor

pv magazine

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Most-read online!

New Zealand sets 10 kW default export limit for rooftop solar

by Ev Foley

Solar keeps slimming down while power rises

by Emiliano Bellini

pv magazine webinars

Coming up next...

Wednesday, 22 April 2026
5:00 pm – 6:00 pm CEST, Berlin
11:00 am – 12:00 pm EDT, New York City

The hidden cost of getting solar plus BESS wrong

Monday, 27 April 2026
4:00 pm – 5:00 pm CEST, Berlin
10:00 am - 11:00 am EDT, New York City

Agrivoltaics 101: How solar and agriculture can thrive on the same land

Many more to come!

In the next weeks, we will continuously add further webinars with innovative partners and the latest topics.

Check out our pv magazine Webinar program at:

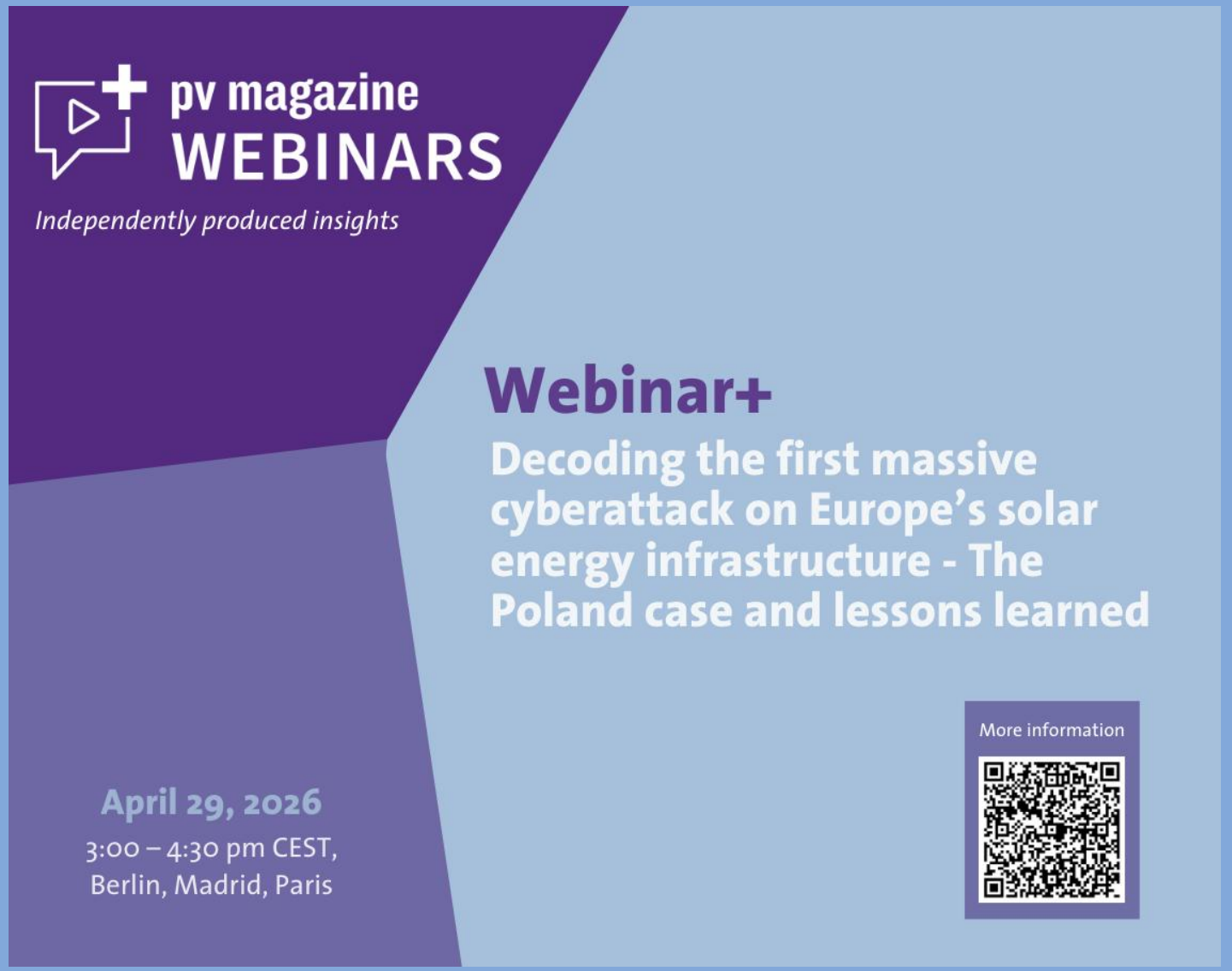
www.pv-magazine.com/webinars

Registration, downloads & recordings are also be found there.

Webinar+

In this ticketed webinar, we will unpack the incident in detail for Poland case and offer practical strategies to safeguard against threats.

We will also examine the weaknesses and vulnerabilities that allowed the hackers to cause harm and discuss why the generation was not directly manipulated.



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pv magazine webinars



Matthew Lynas
Editor
pv magazine

Thank you for joining today!